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OM protein - protein search, using sw model

Run on: March 9, 2005, 01:48:13 ; Search time 156.642 Seconds
(without alignments)
370.361 Million cell updates/sec

Title: US-10-054-873-7
Perfect score: 797
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 150

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_16Dec04:*
1: geneseqp1980s:*
2: geneseqp1990s:*
3: geneseqp2000s:*
4: geneseqp2001s:*
5: geneseqp2002s:*
6: geneseqp2003as:*
7: geneseqp2003bs:*
8: geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query		DB	ID	Description
		Match	Length			
1	797	100.0	150	2	AA42861	Aay42861 Chimeric
2	555.5	69.7	107	2	AA42860	Aay42860 hGH-mini-
3	470	59.0	92	2	AA42856	Aay42856 Human gro
4	470	59.0	134	2	AA92265	Aaw92265 Human ant
5	470	59.0	191	5	AB94861	Abg94861 Human gro
6	466	58.5	188	8	AD47330	Adi47330 Plasmid p
7	466	58.5	192	1	AA90129	Aap90129 Human gro
8	466	58.5	192	2	AA92264	Aaw92264 Human ant
9	466	58.5	192	8	AD47320	Adi47320 Plasmid p

10	466	58.5	192	8	ADI47390	Adi47390	Plasmid p
11	466	58.5	192	8	ADI47398	Adi47398	Nmer ampl
12	466	58.5	193	8	ADI47354	Adi47354	Plasmid p
13	466	58.5	206	8	ADI47384	Adi47384	Plasmid p
14	466	58.5	391	8	ADI47363	Adi47363	Plasmid p
15	466	58.5	574	8	ADI47344	Adi47344	Plasmid p
16	466	58.5	576	8	ADI47351	Adi47351	Plasmid p
17	466	58.5	589	8	ADI47365	Adi47365	N+1mer am
18	466	58.5	786	8	ADI47367	Adi47367	Nmer ampl
19	466	58.5	810	8	ADI47388	Adi47388	Amplifica
20	465	58.3	140	1	AAP91041	Aap91041	Human gro
21	465	58.3	191	8	ADR21016	Adr21016	Human mul
22	465	58.3	261	1	AAP91299	Aap91299	Human ner
23	465	58.3	262	2	AAR11740	Aar11740	Human gro
24	465	58.3	310	2	AAR03255	Aar03255	Fusion pr
25	464.5	58.3	191	7	ADF70881	Adf70881	Human gro
26	464	58.2	191	5	ABG31862	Abg31862	Mature hu
27	464	58.2	191	8	ADL89541	Adl89541	Human mod
28	463	58.1	191	5	ABG94860	Abg94860	Human gro
29	463	58.1	191	5	ABG94977	Abg94977	Human gro
30	463	58.1	191	7	ADK41914	Adk41914	Human gro
31	463	58.1	191	8	ADL89532	Adl89532	Human mod
32	463	58.1	191	8	ADL89542	Adl89542	Human mod
33	463	58.1	191	8	ADL89553	Adl89553	Human mod
34	463	58.1	191	8	ADR21180	Adr21180	Human gro
35	463	58.1	213	8	ADQ39291	Adq39291	Human myo
36	463	58.1	794	7	ADF16507	Adf16507	Human alb
37	463	58.1	800	7	ADF16216	Adf16216	Human alb
38	462	58.0	144	2	AAR05313	Aar05313	Segment o
39	462	58.0	191	5	ABG94975	Abg94975	Human gro
40	462	58.0	191	5	ABG94976	Abg94976	Human gro
41	462	58.0	191	7	ADK41912	Adk41912	Human gro
42	462	58.0	191	7	ADK41913	Adk41913	Human gro
43	462	58.0	191	8	ADL89547	Adl89547	Human mod
44	462	58.0	191	8	ADL89554	Adl89554	Human mod
45	462	58.0	191	8	ADL89533	Adl89533	Human mod

ALIGNMENTS

RESULT 1

AA42861

ID AAY42861 standard; protein; 150 AA.

XX

AC AAY42861;

XX

DT 19-JAN-2000 (first entry)

XX

DE Chimeric protein, SEQ ID 7.

XX

KW Insulin; precursor; growth hormone; chaperone; intramolecular; folding;
KW conformation; chimeric protein; cleavable; recombinant; production;
KW yield.

XX

OS Synthetic.

OS Homo sapiens.

XX
 PN WO9950302-A1.
 XX
 PD 07-OCT-1999.
 XX
 PF 31-MAR-1998; 98WO-CN000052.
 XX
 PR 31-MAR-1998; 98WO-CN000052.
 XX
 PA (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.
 XX
 PI Gan Z;
 XX
 DR WPI; 1999-610839/52.
 XX
 PT New chimeric proteins containing human growth hormone fragment, used
 PT particularly for the production of human insulin.
 XX
 PS Claim 14; Page 30-31; 46pp; English.
 XX
 CC This sequence represents a chimeric protein, which contains an N-terminal
 CC fragment of human growth hormone (hGH) of the sequence given in AAY42856,
 CC a cleavable peptide linker (AAY42857), and a human insulin precursor
 CC comprising insulin A and B chains (AAY42859). The hGH portion of the
 CC chimeric protein acts as an intramolecular chaperone (IMC) for the
 CC insulin precursor, enabling it to fold correctly. The cleavable peptide
 CC linker has a C-terminal Arg residue which enables the hGH portion of the
 CC chimeric protein to be removed after folding has taken place. Production
 CC of recombinant human insulin via an hGH-proinsulin chimeric protein can
 CC provide human insulin with correctly linked cysteine bridges with fewer
 CC necessary procedural steps, and hence resulting in a higher yield of
 CC human insulin. The IMC sequences not only protect insulin sequences from
 CC intracellular degradation by a microorganism host, but also promote the
 CC folding of the fused insulin precursor, facilitate the solubility of the
 CC fusion protein and decrease the intermolecular interactions among the
 CC fusion proteins, thus allowing folding of the fused insulin precursor at
 CC commercially useful high concentrations. The procedural steps of cyanogen
 CC bromide cleavage, oxidative sulphytolysis and related purification steps
 CC can thus be eliminated, along with the use of high concentrations of
 CC mercaptan or the use of hydrophobic absorbent resins
 XX
 SQ Sequence 150 AA;

Query Match 100.0%; Score 797; DB 2; Length 150;
 Best Local Similarity 100.0%; Pred. No. 1.5e-45;
 Matches 150; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
 Qy 61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQLGTGPRFVNQHLGSHLVEALYLVCGER 120
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQLGTGPRFVNQHLGSHLVEALYLVCGER 120
 Qy 121 GFFYTPKTRGIVEQCCTSICSLYQLENYCN 150
 ||||||||||||||||||||||||||||

RESULT 2

AAY42860

ID AAY42860 standard; protein; 107 AA.

XX

AC AAY42860;

XX

DT 19-JAN-2000 (first entry)

XX

DE hGH-mini-proinsulin chimeric protein.

XX

KW Insulin; precursor; growth hormone; chaperone; intramolecular; folding;

KW conformation; chimeric protein; cleavable; recombinant; production;

KW yield.

XX

OS Synthetic.

OS Homo sapiens.

XX

PN WO9950302-A1.

XX

PD 07-OCT-1999.

XX

PF 31-MAR-1998; 98WO-CN000052.

XX

PR 31-MAR-1998; 98WO-CN000052.

XX

PA (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.

XX

PI Gan Z;

XX

DR WPI; 1999-610839/52.

XX

PT New chimeric proteins containing human growth hormone fragment, used

PT particularly for the production of human insulin.

XX

PS Claim 13; Page 30; 46pp; English.

XX

CC This sequence represents a chimeric protein, hGH-mini-proinsulin. This
 CC chimeric protein contains an N-terminal fragment of human growth hormone
 CC (hGH) of the sequence given in AAY42855, a cleavable peptide linker
 CC (AAY42857), and a human insulin precursor comprising insulin A and B
 CC chains (AAY42859). The hGH portion of the chimeric protein acts as an
 CC intramolecular chaperone (IMC) for the insulin precursor, enabling it to
 CC fold correctly. The cleavable peptide linker has a C-terminal Arg residue
 CC which enables the hGH portion of the chimeric protein to be removed after
 CC folding has taken place. Production of recombinant human insulin via an
 CC hGH-proinsulin chimeric protein can provide human insulin with correctly
 CC linked cysteine bridges with fewer necessary procedural steps, and hence
 CC resulting in a higher yield of human insulin. The IMC sequences not only
 CC protect insulin sequences from intracellular degradation by a
 CC microorganism host, but also promote the folding of the fused insulin
 CC precursor, facilitate the solubility of the fusion protein and decrease
 CC the intermolecular interactions among the fusion proteins, thus allowing
 CC folding of the fused insulin precursor at commercially useful high
 CC concentrations. The procedural steps of cyanogen bromide cleavage,

CC oxidative sulphitolysis and related purification steps can thus be
CC eliminated, along with the use of high concentrations of mercaptan or the
CC use of hydrophobic absorbent resins
XX
SQ Sequence 107 AA;

Query Match 69.7%; Score 555.5; DB 2; Length 107;
Best Local Similarity 71.3%; Pred. No. 1.1e-29;
Matches 107; Conservative 0; Mismatches 0; Indels 43; Gaps 1;

```
Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
          |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP----- 49

Qy     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLGSHLVEALYLVCGER 120
          |||
Db     50 -----LGTGPRFVNQHLGSHLVEALYLVCGER 77

Qy    121 GFFYTPKTRGIVEQCCTSICSLYQLENYCN 150
          |||
Db     78 GFFYTPKTRGIVEQCCTSICSLYQLENYCN 107
```

RESULT 3

AA42856

ID AAY42856 standard; protein; 92 AA.

XX

AC AAY42856;

XX

DT 19-JAN-2000 (first entry)

XX

DE Human growth hormone (hGH) N-terminal fragment #2.

XX

KW Growth hormone; chaperone; intramolecular; insulin; precursor; folding;
KW conformation; chimeric protein; cleavable; recombinant; production;
KW yield.

XX

OS Homo sapiens.

XX

PN WO9950302-A1.

XX

PD 07-OCT-1999.

XX

PF 31-MAR-1998; 98WO-CN000052.

XX

PR 31-MAR-1998; 98WO-CN000052.

XX

PA (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.

XX

PI Gan Z;

XX

DR WPI; 1999-610839/52.

XX

PT New chimeric proteins containing human growth hormone fragment, used
PT particularly for the production of human insulin.

XX

PS Claim 5; Page 28; 46pp; English.

XX
 CC This sequence represents an N-terminal fragment of human growth hormone
 CC (hGH) which is a component of a chimeric protein (AAY42861) which also
 CC contains a human insulin precursor (AAY42859). The hGH portion of the
 CC chimeric protein acts as an intramolecular chaperone (IMC) for the
 CC insulin precursor, enabling it to fold correctly. A cleavable peptide
 CC linker with a C-terminal Arg residue (AAY42857) enables the hGH portion
 CC of the chimeric protein to be removed after folding has taken place.
 CC Production of recombinant human insulin via an hGH-proinsulin chimeric
 CC protein can provide human insulin with correctly linked cysteine bridges
 CC with fewer necessary procedural steps, and hence resulting in a higher
 CC yield of human insulin. The IMC sequences not only protect insulin
 CC sequences from intracellular degradation by a microorganism host, but
 CC also promote the folding of the fused insulin precursor, facilitate the
 CC solubility of the fusion protein and decrease the intermolecular
 CC interactions among the fusion proteins, thus allowing folding of the
 CC fused insulin precursor at commercially useful high concentrations. The
 CC procedural steps of cyanogen bromide cleavage, oxidative sulphytolysis
 CC and related purification steps can thus be eliminated, along with the use
 CC of high concentrations of mercaptan or the use of hydrophobic absorbent
 CC resins

XX
 SQ Sequence 92 AA;

Query Match 59.0%; Score 470; DB 2; Length 92;
 Best Local Similarity 100.0%; Pred. No. 4.5e-24;
 Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
 Qy 61 TSPNREETQQKSNLELLLRISLLLIQSWLEPVQ 92
 ||||||||||||||||||||||||||||||||
 Db 61 TSPNREETQQKSNLELLLRISLLLIQSWLEPVQ 92

RESULT 4

AAW92265

ID AAW92265 standard; protein; 134 AA.

XX

AC AAW92265;

XX

DT 08-JUN-1999 (first entry)

XX

DE Human anti-angiogenic peptide 16K hGH Met-1Prol33.

XX

KW Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;
 KW growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;
 KW placental vascularisation; pregnancy; treatment; angiogenic disease;
 KW tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;
 KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;
 KW wound healing; proliferative retinopathy; macular degeneration; trachoma;
 KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;
 KW psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;
 KW ulcer; leukaemia; reproductive disorder; contraceptive agent;
 KW gene therapy; pre-eclampsia; intrauterine growth retardation;

KW placental dysfunction.
 XX
 OS Homo sapiens.
 XX
 PN WO9851323-A1.
 XX
 PD 19-NOV-1998.
 XX
 PF 12-MAY-1998; 98WO-US009691.
 XX
 PR 13-MAY-1997; 97US-0046394P.
 XX
 PA (REGC) UNIV CALIFORNIA.
 XX
 PI Weiner RI, Martial JA, Struman I, Taylor R;
 XX
 DR WPI; 1999-045192/04.
 DR N-PSDB; AAX01707.
 XX
 PT New anti-angiogenic peptides - comprise N-terminal fragments of human
 PT placental lactogen, human growth hormone, growth hormone variant or human
 PT prolactin.
 XX
 PS Claim 4; Page 49-50; 87pp; English.
 XX
 CC This invention describes novel human anti-angiogenic peptides derived
 CC from 10 to 150 consecutive amino acids selected from the N-terminal end
 CC of human placental lactogen (hPL), human growth hormone (hGH), growth
 CC hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit
 CC capillary endothelial cell proliferation and organisation (ii) inhibit
 CC angiogenesis in chick chorioallantoic membrane and (iii) binds to at
 CC least one specific receptor which does not bind an intact full length
 CC hGH, hPL, prolactin or hGH-V. The invention also describes a method for
 CC diagnosing a probable abnormality of placental vascularisation during
 CC pregnancy. The peptides can be used for treating an angiogenic disease in
 CC a subject, for inhibiting tumour formation or growth in a patient or for
 CC modulating vascularisation of a patient's placenta. In particular, the
 CC peptides can be used for preventing or treating e.g. malignant tumours,
 CC angiofibroma, arteriovenous malformation, arthritic such as rheumatoid
 CC arthritis, atherosclerotic plaques, corneal graft neovascularisation,
 CC delayed wound healing, proliferative retinopathy such as diabetic
 CC retinopathy, macular degeneration, granulations such as those occurring
 CC in haemophilic joints, inappropriate vascularisation in wound healing
 CC such as hypertrophic scars or keloid scars, neovascular glaucoma, ocular
 CC tumour, uveitis, non-union fractures, Osler-Weber syndrome, psoriasis,
 CC pyogenic glaucoma, retrolental fibroplasia, scleroderma, solid tumours,
 CC Kaposi's sarcoma, trachoma, vascular adhesions, chronic varicose ulcers,
 CC leukaemia, and reproductive disorders such as follicular and luteal cysts
 CC and choriocarcinoma. They can also be used as contraceptive agents. DNA
 CC encoding the peptides can be used in gene therapy. The measurement of
 CC abnormal levels of N-terminal fragments of hGH, hGH-V, prolactin or hPL
 CC can be used in assays for impairment of vascular development associated
 CC with pre-eclampsia, intrauterine growth retardation, and placental
 CC dysfunction
 XX
 SQ Sequence 134 AA;

Query Match 59.0%; Score 470; DB 2; Length 134;
Best Local Similarity 100.0%; Pred. No. 6.1e-24;
Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
          |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
          |||
Db     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
```

RESULT 5

ABG94861

ID ABG94861 standard; protein; 191 AA.

XX

AC ABG94861;

XX

DT 03-DEC-2002 (first entry)

XX

DE Human growth hormone mutant hPRL (111-129).

XX

KW Growth hormone; placental lactogen; prolactin; active domain; hGH;

KW structure-function relationship; segment-substituted polypeptide; mutant;

KW mutein.

XX

OS Homo sapiens.

OS Synthetic.

XX

PN US6428954-B1.

XX

PD 06-AUG-2002.

XX

PF 06-JUN-1995; 95US-00483039.

XX

PR 28-OCT-1988; 88US-00264611.

PR 26-OCT-1989; 89US-00428066.

PR 27-APR-1992; 92US-00875204.

PR 13-OCT-1992; 92US-00960227.

PR 02-FEB-1994; 94US-00190723.

XX

PA (GETH) GENENTECH INC.

XX

PI Wells JA, Cunningham BC;

XX

DR WPI; 2002-696875/75.

XX

PT Identifying active domains within cloned polypeptides of known amino acid

PT sequence by substituting analog segments into the parent polypeptide is

PT useful to determine the relationship between structure and function.

XX

PS Example 1; Page; 86pp; English.

XX

CC The invention relates to identifying an unknown active domain in a region

CC of known amino acid sequence in a parent polypeptide e.g. human growth

CC hormone (hGH) which has been cloned and has a pre-identified biological

CC activity, where the active domain interacts with a target when the parent
 CC polypeptide is in its native-folded form and the interaction is
 CC responsible for the biological activity comprising: (a) comparing the
 CC amino acid sequence or polypeptide structure in the region of known amino
 CC acid sequence of hGH with the amino acid sequence or polypeptide
 CC structure in a region of known amino acid sequence of an analogue
 CC polypeptide (e.g. prolactin, placental lactogen or porcine growth
 CC hormone) which has at least 15% homology with hGH alpha-carbon
 CC coordinates within about 2-3.5 angstroms of hGH alpha-carbon coordinates
 CC for about 60% of the analogue sequence, where any interaction of the
 CC analogue with the target is different from target interaction with hGH;
 CC (b) substituting DNA encoding an analogous polypeptide segment from the
 CC analogue into DNA encoding the full length hGH, and expressing a segment-
 CC substituted polypeptide; (c) contacting the segment-substituted
 CC polypeptide with the target to determine interaction; (d) repeating steps
 CC (b) and (c) with a second analogous polypeptide segment; and (e)
 CC comparing the difference between activity of the first and second segment
 CC -substituted polypeptides as an indication of the location of the unknown
 CC active domain in hGH. The method is useful for determining the
 CC relationship between structure and function of known polypeptide
 CC sequences. The present sequence is that of human growth hormone mutant
 CC substituted with residues from an hGH analogue (prolactin, placental
 CC lactogen or porcine growth hormone). Note: The present sequence is not
 CC shown in the specification but was created by the indexer using the
 CC mature hGH sequence and information contained in the specification

XX

SQ Sequence 191 AA;

Query Match 59.0%; Score 470; DB 5; Length 191;
 Best Local Similarity 69.2%; Pred. No. 8.2e-24;
 Matches 101; Conservative 8; Mismatches 19; Indels 18; Gaps 3;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
 |||
 Db 1 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 60
 Qy 62 PSNREETQQKSNLELLRLISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----H 108
 ||| :|:
 Db 61 PSNREETQQKSNLELLRLISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVVDILEQLKR 119
 Qy 109 LVEALYLVCGERGFFYTPKTRGIVEQ 134
 |:| | |: : :|:| | :|
 Db 120 LIEGLMLILSDG----SPRTGQIFKQ 141

RESULT 6

ADI47330

ID ADI47330 standard; protein; 188 AA.

XX

AC ADI47330;

XX

DT 22-APR-2004 (first entry)

XX

DE Plasmid p0A11A1 amino acid sequence SEQ ID NO:18.

XX

KW multimer assembly; DNA sequence; amplification cassette;

KW monomer sequence; restriction pair member; diagnostic protein;

KW therapeutic protein.
 XX
 OS Synthetic.
 XX
 PN WO2004007687-A2.
 XX
 PD 22-JAN-2004.
 XX
 PF 16-JUL-2003; 2003WO-US022216.
 XX
 PR 16-JUL-2002; 2002US-0396466P.
 XX
 PA (BUSS/) BUSSELL S.
 XX
 PI Bussell S;
 XX
 DR WPI; 2004-122926/12.
 DR N-PSDB; ADI47329.
 XX
 PT Multimer assembly of DNA sequences comprising an amplification cassette
 PT having monomer sequences and 5' restriction pair member (RPM) at its 5'
 PT terminus and 3' RPM at its 3' terminus.
 XX
 PS Example 2; SEQ ID NO 18; 163pp; English.
 XX
 CC The present invention describes a multimer assembly of DNA sequences (I)
 CC comprising at least one amplification cassette (AC) having at least one
 CC monomer sequence whose polymerisation is desired, and a 5' restriction
 CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and
 CC one or more of following: (a) 3'-terminal cassette comprising 3' specific
 CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal
 CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'
 CC RPM site of AC. (I) can be used for expressing a diagnostic protein or
 CC therapeutic protein. In (I), the diagnostic protein and therapeutic
 CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor
 CC ligand, an enzyme, an inhibitor, a transcription factor, a translation
 CC factor, a DNA replication factor, an activator, a chaperonin, or an
 CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,
 CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,
 CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,
 CC colony-stimulating factor-1, granulocyte colony-stimulating factor,
 CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory
 CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth
 CC factor, fibroblast growth factors, vascular endothelial cell growth
 CC factor, epidermal growth factor, transforming growth factor-beta,
 CC transforming growth factor-alpha, thrombopoietin, stem cell factor,
 CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth
 CC factor, macrophage migration inhibiting factor, endostatin, or
 CC angiostatin. The present sequence is used in the exemplification of the
 CC present invention.
 XX
 SQ Sequence 188 AA;

Query Match 58.5%; Score 466; DB 8; Length 188;
 Best Local Similarity 70.5%; Pred. No. 1.5e-23;
 Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
 |||
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy 61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
 ||| : | : |
 Db 61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119

Qy 111 EALYLVCG--ERGGFFYTPKTRGIVEQ 134
 | : : | | : | : |
 Db 120 EGIQTLMGRLDG---SPRTGQIFKQ 142

RESULT 7

AAP90129

ID AAP90129 standard; protein; 192 AA.

XX

AC AAP90129;

XX

DT 24-OCT-2003 (revised)

DT 25-MAR-2003 (revised)

DT 06-FEB-1996 (revised)

DT 01-NOV-1989 (first entry)

XX

DE Human growth hormone.

XX

KW Human growth hormone; fusion protein; recombinant vector.

XX

OS Homo sapiens; (Human).

XX

PN JP01144981-A.

XX

PD 07-JUN-1989.

XX

PF 02-DEC-1987; 87JP-00304937.

XX

PR 02-DEC-1987; 87JP-00304937.

XX

PA (WAKT) WAKUNAGA SEIYAKU KK.

XX

DR WPI; 1989-209284/29.

DR N-PSDB; AAN90269.

XX

PT Recombinant vector contg. fused protein aminoacid coding - composed of growth hormone or its polypeptide deriv. and foreign protein.

XX

PS Disclosure; Fig 1; 19pp; Japanese.

XX

CC The invention consists of a vector contg. a fusion protein which is
 CC formed by ligating, downstream of a promoter, hGH or a deriv. (pref.
 CC formed by substn. of Met-14 with Leu) and a foreign protein. Stability
 CC of the vector in the host is greatly increased so the protein yield is
 CC higher. (Updated on 25-MAR-2003 to correct PA field.) (Updated on 24-OCT-
 CC 2003 to standardise OS field)

XX

SQ Sequence 192 AA;

Query Match 58.5%; Score 466; DB 1; Length 192;
 Best Local Similarity 70.5%; Pred. No. 1.5e-23;
 Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```

Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDQYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
        ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDQYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
        ||||||||||||||||||||||||||||| | | : | : |
Db     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119

Qy    111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
        | : : | | | : | : |
Db    120 EGIQTLMGRLEDG---SPRTGQIFKQ 142
  
```

RESULT 8

AAW92264

ID AAW92264 standard; protein; 192 AA.

XX

AC AAW92264;

XX

DT 08-JUN-1999 (first entry)

XX

DE Human anti-angiogenic peptide hGH Met-1Phe191.

XX

KW Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;
 KW growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;
 KW placental vascularisation; pregnancy; treatment; angiogenic disease;
 KW tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;
 KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;
 KW wound healing; proliferative retinopathy; macular degeneration; trachoma;
 KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;
 KW psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;
 KW ulcer; leukaemia; reproductive disorder; contraceptive agent;
 KW gene therapy; pre-eclampsia; intrauterine growth retardation;
 KW placental dysfunction.

XX

OS Homo sapiens.

XX

PN WO9851323-A1.

XX

PD 19-NOV-1998.

XX

PF 12-MAY-1998; 98WO-US009691.

XX

PR 13-MAY-1997; 97US-0046394P.

XX

PA (REGC) UNIV CALIFORNIA.

XX

PI Weiner RI, Martial JA, Struman I, Taylor R;

XX

DR WPI; 1999-045192/04.

DR

N-PSDB; AAX01706.

XX

PT New anti-angiogenic peptides - comprise N-terminal fragments of human

XX
 AC ADI47320;
 XX
 DT 22-APR-2004 (first entry)
 XX
 DE Plasmid p0A0 amino acid sequence SEQ ID NO:8.
 XX
 KW multimer assembly; DNA sequence; amplification cassette;
 KW monomer sequence; restriction pair member; diagnostic protein;
 KW therapeutic protein.
 XX
 OS Synthetic.
 XX
 PN WO2004007687-A2.
 XX
 PD 22-JAN-2004.
 XX
 PF 16-JUL-2003; 2003WO-US022216.
 XX
 PR 16-JUL-2002; 2002US-0396466P.
 XX
 PA (BUSS/) BUSSELL S.
 XX
 PI Bussell S;
 XX
 DR WPI; 2004-122926/12.
 DR N-PSDB; ADI47319.
 XX
 PT Multimer assembly of DNA sequences comprising an amplification cassette
 PT having monomer sequences and 5' restriction pair member (RPM) at its 5'
 PT terminus and 3' RPM at its 3' terminus.
 XX
 PS Example 1; SEQ ID NO 8; 163pp; English.
 XX
 CC The present invention describes a multimer assembly of DNA sequences (I)
 CC comprising at least one amplification cassette (AC) having at least one
 CC monomer sequence whose polymerisation is desired, and a 5' restriction
 CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and
 CC one or more of following: (a) 3'-terminal cassette comprising 3' specific
 CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal
 CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'
 CC RPM site of AC. (I) can be used for expressing a diagnostic protein or
 CC therapeutic protein. In (I), the diagnostic protein and therapeutic
 CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor
 CC ligand, an enzyme, an inhibitor, a transcription factor, a translation
 CC factor, a DNA replication factor, an activator, a chaperonin, or an
 CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,
 CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,
 CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,
 CC colony-stimulating factor-1, granulocyte colony-stimulating factor,
 CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory
 CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth
 CC factor, fibroblast growth factors, vascular endothelial cell growth
 CC factor, epidermal growth factor, transforming growth factor-beta,
 CC transforming growth factor-alpha, thrombopoietin, stem cell factor,
 CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth
 CC factor, macrophage migration inhibiting factor, endostatin, or

CC angiostatin. The present sequence is used in the exemplification of the
CC present invention.
XX
SQ Sequence 192 AA;

Query Match 58.5%; Score 466; DB 8; Length 192;
Best Local Similarity 70.5%; Pred. No. 1.5e-23;
Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```

Qy      1 MFPTIPLSRFLDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
        |||
Db      1 MFPTIPLSRFLDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy     61 TPSNREETQQKSNELELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
        |||
Db     61 TPSNREETQQKSNELELLRISLLLIQSWLEPVQF-LRSVFANSVLVGASDSNVYDLLKDLE 119

Qy    111 EALYLVCG--ERGGFFYTPKTRGIVEQ 134
        | : : | | | :|:| | :|
Db    120 EGIOTLMGRLEDG---SPRTGOIFKO 142

```

RESULT 10

ADI47390

ID ADI47390 standard; protein; 192 AA.

XX

AC ADI47390;

XX

DT 22-APR-2004 (first entry)

XX

DE Plasmid p0A51A amino acid sequence SEQ ID NO:78.

XX

KW multimer assembly; DNA sequence; amplification cassette;

KW monomer sequence; restriction pair member; diagnostic protein;

KW therapeutic protein.

XX

OS Synthetic.

XX

PN WO2004007687-A2.

XX

PD 22-JAN-2004.

XX

PF 16-JUL-2003; 2003WO-US022216.

XX

PR 16-JUL-2002; 2002US-0396466P.

XX

PA (BUSS/) BUSSELL S.

XX

PI Bussell S;

XX

DR WPI; 2004-122926/12.

DR P-PSDB; ADI47389.

XX

PT Multimer assembly of DNA sequences comprising an amplification cassette

PT having monomer sequences and 5' restriction pair member (RPM) at its 5'

PT terminus and 3' RPM at its 3' terminus.

XX

KW multimer assembly; DNA sequence; amplification cassette;
 KW monomer sequence; restriction pair member; diagnostic protein;
 KW therapeutic protein.
 XX
 OS Synthetic.
 XX
 PN WO2004007687-A2.
 XX
 PD 22-JAN-2004.
 XX
 PF 16-JUL-2003; 2003WO-US022216.
 XX
 PR 16-JUL-2002; 2002US-0396466P.
 XX
 PA (BUSS/) BUSSELL S.
 XX
 PI Bussell S;
 XX
 DR WPI; 2004-122926/12.
 DR P-PSDB; ADI47397.
 XX
 PT Multimer assembly of DNA sequences comprising an amplification cassette
 PT having monomer sequences and 5' restriction pair member (RPM) at its 5'
 PT terminus and 3' RPM at its 3' terminus.
 XX
 PS Claim 115; SEQ ID NO 86; 163pp; English.
 XX
 CC The present invention describes a multimer assembly of DNA sequences (I)
 CC comprising at least one amplification cassette (AC) having at least one
 CC monomer sequence whose polymerisation is desired, and a 5' restriction
 CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and
 CC one or more of following: (a) 3'-terminal cassette comprising 3' specific
 CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal
 CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'
 CC RPM site of AC. (I) can be used for expressing a diagnostic protein or
 CC therapeutic protein. In (I), the diagnostic protein and therapeutic
 CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor
 CC ligand, an enzyme, an inhibitor, a transcription factor, a translation
 CC factor, a DNA replication factor, an activator, a chaperonin, or an
 CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,
 CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,
 CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,
 CC colony-stimulating factor-1, granulocyte colony-stimulating factor,
 CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory
 CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth
 CC factor, fibroblast growth factors, vascular endothelial cell growth
 CC factor, epidermal growth factor, transforming growth factor-beta,
 CC transforming growth factor-alpha, thrombopoietin, stem cell factor,
 CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth
 CC factor, macrophage migration inhibiting factor, endostatin, or
 CC angiostatin. The present sequence is used in the exemplification of the
 CC present invention.
 XX
 SQ Sequence 192 AA;

Query Match 58.5%; Score 466; DB 8; Length 192;
 Best Local Similarity 70.5%; Pred. No. 1.5e-23;

Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```
Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
        |||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60

Qy     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
        ||||||||||||||||||||||||||||| | | : | : |
Db     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119

Qy    111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
        | : : | | | :|:| | :|
Db    120 EGIQTLMGRLLEDG---SPRTGQIFKQ 142
```

RESULT 12

ADI47354

ID ADI47354 standard; protein; 193 AA.

XX

AC ADI47354;

XX

DT 22-APR-2004 (first entry)

XX

DE Plasmid p0A31A amino acid sequence SEQ ID NO:42.

XX

KW multimer assembly; DNA sequence; amplification cassette;

KW monomer sequence; restriction pair member; diagnostic protein;

KW therapeutic protein.

XX

OS Synthetic.

XX

PN WO2004007687-A2.

XX

PD 22-JAN-2004.

XX

PF 16-JUL-2003; 2003WO-US022216.

XX

PR 16-JUL-2002; 2002US-0396466P.

XX

PA (BUSS/) BUSSELL S.

XX

PI Bussell S;

XX

DR WPI; 2004-122926/12.

DR N-PSDB; ADI47353.

XX

PT Multimer assembly of DNA sequences comprising an amplification cassette

PT having monomer sequences and 5' restriction pair member (RPM) at its 5'

PT terminus and 3' RPM at its 3' terminus.

XX

PS Example 7; SEQ ID NO 42; 163pp; English.

XX

CC The present invention describes a multimer assembly of DNA sequences (I)

CC comprising at least one amplification cassette (AC) having at least one

CC monomer sequence whose polymerisation is desired, and a 5' restriction

CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and

CC one or more of following: (a) 3'-terminal cassette comprising 3' specific ~

XX PD 22-JAN-2004.
XX
PF 16-JUL-2003; 2003WO-US022216.
XX
PR 16-JUL-2002; 2002US-0396466P.
XX
PA (BUSS/) BUSSELL S.
XX
PI Bussell S;
XX
DR WPI; 2004-122926/12.
DR P-PSDB; ADI47383.
XX
PT Multimer assembly of DNA sequences comprising an amplification cassette
PT having monomer sequences and 5' restriction pair member (RPM) at its 5'
PT terminus and 3' RPM at its 3' terminus.
XX
PS Example 11; SEQ ID NO 72; 163pp; English.
XX
CC The present invention describes a multimer assembly of DNA sequences (I)
CC comprising at least one amplification cassette (AC) having at least one
CC monomer sequence whose polymerisation is desired, and a 5' restriction
CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and
CC one or more of following: (a) 3'-terminal cassette comprising 3' specific
CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal
CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'
CC RPM site of AC. (I) can be used for expressing a diagnostic protein or
CC therapeutic protein. In (I), the diagnostic protein and therapeutic
CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor
CC ligand, an enzyme, an inhibitor, a transcription factor, a translation
CC factor, a DNA replication factor, an activator, a chaperonin, or an
CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,
CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,
CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,
CC colony-stimulating factor-1, granulocyte colony-stimulating factor,
CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory
CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth
CC factor, fibroblast growth factors, vascular endothelial cell growth
CC factor, epidermal growth factor, transforming growth factor-beta,
CC transforming growth factor-alpha, thrombopoietin, stem cell factor,
CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth
CC factor, macrophage migration inhibiting factor, endostatin, or
CC angiostatin. The present sequence is used in the exemplification of the
CC present invention.
XX
SQ Sequence 206 AA;

Query Match 58.5%; Score 466; DB 8; Length 206;
Best Local Similarity 70.5%; Pred. No. 1.6e-23;
Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
 |||
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60
 |||
 Qv 61 TPSNREETOOKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCS-----HLV 110


```

          |||||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119
          | | : | :
Qy      111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
          | : : | | | : | | : |
Db      120 EGIQTLMGRLEDG---SPRTGQIFKQ 142

```

RESULT 14

ADI47363

ID ADI47363 standard; protein; 391 AA.

XX

AC ADI47363;

XX

DT 22-APR-2004 (first entry)

XX

DE Plasmid p0A31F2 insert amino acid sequence SEQ ID NO:51.

XX

KW multimer assembly; DNA sequence; amplification cassette;

KW monomer sequence; restriction pair member; diagnostic protein;

KW therapeutic protein.

XX

OS Synthetic.

XX

PN WO2004007687-A2.

XX

PD 22-JAN-2004.

XX

PF 16-JUL-2003; 2003WO-US022216.

XX

PR 16-JUL-2002; 2002US-0396466P.

XX

PA (BUSS/) BUSSELL S.

XX

PI Bussell S;

XX

DR WPI; 2004-122926/12.

DR N-PSDB; ADI47362.

XX

PT Multimer assembly of DNA sequences comprising an amplification cassette

PT having monomer sequences and 5' restriction pair member (RPM) at its 5'

PT terminus and 3' RPM at its 3' terminus.

XX

PS Example 8; SEQ ID NO 51; 163pp; English.

XX

CC The present invention describes a multimer assembly of DNA sequences (I)

CC comprising at least one amplification cassette (AC) having at least one

CC monomer sequence whose polymerisation is desired, and a 5' restriction

CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and

CC one or more of following: (a) 3'-terminal cassette comprising 3' specific

CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal

CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'

CC RPM site of AC. (I) can be used for expressing a diagnostic protein or

CC therapeutic protein. In (I), the diagnostic protein and therapeutic

CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor

CC ligand, an enzyme, an inhibitor, a transcription factor, a translation

CC factor, a DNA replication factor, an activator, a chaperonin, or an

PA (BUSS/) BUSSELL S.
 XX
 PI Bussell S;
 XX
 DR WPI; 2004-122926/12.
 DR N-PSDB; ADI47343.
 XX
 PT Multimer assembly of DNA sequences comprising an amplification cassette
 PT having monomer sequences and 5' restriction pair member (RPM) at its 5'
 PT terminus and 3' RPM at its 3' terminus.
 XX
 PS Claim 67; SEQ ID NO 32; 163pp; English.
 XX
 CC The present invention describes a multimer assembly of DNA sequences (I)
 CC comprising at least one amplification cassette (AC) having at least one
 CC monomer sequence whose polymerisation is desired, and a 5' restriction
 CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and
 CC one or more of following: (a) 3'-terminal cassette comprising 3' specific
 CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal
 CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'
 CC RPM site of AC. (I) can be used for expressing a diagnostic protein or
 CC therapeutic protein. In (I), the diagnostic protein and therapeutic
 CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor
 CC ligand, an enzyme, an inhibitor, a transcription factor, a translation
 CC factor, a DNA replication factor, an activator, a chaperonin, or an
 CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,
 CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,
 CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,
 CC colony-stimulating factor-1, granulocyte colony-stimulating factor,
 CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory
 CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth
 CC factor, fibroblast growth factors, vascular endothelial cell growth
 CC factor, epidermal growth factor, transforming growth factor-beta,
 CC transforming growth factor-alpha, thrombopoietin, stem cell factor,
 CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth
 CC factor, macrophage migration inhibiting factor, endostatin, or
 CC angiostatin. The present sequence is used in the exemplification of the
 CC present invention.
 XX
 SQ Sequence 574 AA;

Query Match 58.5%; Score 466; DB 8; Length 574;
 Best Local Similarity 70.5%; Pred. No. 3.7e-23;
 Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
 |||
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSSESIP 60
 |||
 Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCS-----HLV 110
 ||| : | :
 Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119
 ||| : | :
 Qy 111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
 | : : | | : | : | :
 Db 120 EGIQTLMGRLEDG---SPRTGQIFKQ 142

Search completed: March 9, 2005, 04:10:19
Job time : 157.642 secs

OM protein - protein search, using sw model

Run on: March 9, 2005, 04:04:46 ; Search time 40.4059 Seconds
 (without alignments)
 277.122 Million cell updates/sec

Title: US-10-054-873-7
 Perfect score: 797
 Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 150

Scoring table: BLOSUM62
 Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0
 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
 Maximum Match 100%
 Listing first 45 summaries

Database : Issued_Patents_AA:*
 1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
 2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*
 3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*
 4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
 5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
 6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

		%					
Result		Query					Description
No.	Score	Match	Length	DB	ID		
1	466	58.5	192	1	US-08-093-383-1		Sequence 1, Appli
2	463	58.1	242	4	US-09-949-016-8660		Sequence 8660, Ap
3	463	58.1	242	4	US-09-949-016-8661		Sequence 8661, Ap
4	463	58.1	242	4	US-09-949-016-8662		Sequence 8662, Ap
5	463	58.1	242	4	US-09-949-016-8663		Sequence 8663, Ap
6	463	58.1	242	4	US-09-949-016-8664		Sequence 8664, Ap
7	461	57.8	191	3	US-09-284-878-5		Sequence 5, Appli
8	461	57.8	191	4	US-09-462-941-1		Sequence 1, Appli
9	461	57.8	194	2	US-08-383-621-4		Sequence 4, Appli
10	461	57.8	194	3	US-08-459-906-4		Sequence 4, Appli
11	461	57.8	217	3	US-08-589-028-10		Sequence 10, Appli

12	461	57.8	217	3	US-08-784-582-10	Sequence 10, Appl
13	461	57.8	217	3	US-08-785-271-10	Sequence 10, Appl
14	461	57.8	217	3	US-08-759-628-11	Sequence 11, Appl
15	461	57.8	217	3	US-09-284-878-1	Sequence 1, Appli
16	461	57.8	217	4	US-09-929-918-9	Sequence 9, Appli
17	461	57.8	241	3	US-09-424-620B-25	Sequence 25, Appl
18	461	57.8	245	4	US-09-280-030-66	Sequence 66, Appl
19	461	57.8	274	3	US-08-784-582-71	Sequence 71, Appl
20	461	57.8	360	3	US-08-784-582-73	Sequence 73, Appl
21	461	57.8	448	4	US-09-916-229A-2	Sequence 2, Appli
22	460	57.7	191	4	US-09-554-451-1	Sequence 1, Appli
23	460	57.7	198	4	US-09-949-016-8650	Sequence 8650, Ap
24	460	57.7	198	4	US-09-949-016-8651	Sequence 8651, Ap
25	460	57.7	198	4	US-09-949-016-8652	Sequence 8652, Ap
26	460	57.7	198	4	US-09-949-016-8653	Sequence 8653, Ap
27	460	57.7	198	4	US-09-949-016-8654	Sequence 8654, Ap
28	455	57.1	191	3	US-09-465-461-1	Sequence 1, Appli
29	455	57.1	191	4	US-09-554-451-3	Sequence 3, Appli
30	455	57.1	217	1	US-08-187-756C-4	Sequence 4, Appli
31	455	57.1	217	1	US-08-469-486-51	Sequence 51, Appl
32	455	57.1	217	2	US-08-469-658-51	Sequence 51, Appl
33	455	57.1	217	2	US-08-710-324A-4	Sequence 4, Appli
34	455	57.1	217	4	US-09-411-657-4	Sequence 4, Appli
35	454	57.0	400	4	US-09-420-819-37	Sequence 37, Appl
36	454	57.0	401	4	US-09-420-819-36	Sequence 36, Appl
37	448	56.2	191	3	US-08-800-215C-18	Sequence 18, Appl
38	446	56.0	191	3	US-08-800-215C-16	Sequence 16, Appl
39	446	56.0	191	3	US-08-800-215C-20	Sequence 20, Appl
40	365.5	45.9	176	3	US-08-791-728-1	Sequence 1, Appli
41	365.5	45.9	176	3	US-08-990-774-1	Sequence 1, Appli
42	359.5	45.1	176	3	US-08-791-728-2	Sequence 2, Appli
43	359.5	45.1	176	3	US-08-990-774-2	Sequence 2, Appli
44	343	43.0	168	6	5424199-3	Patent No. 5424199
45	343	43.0	168	6	5424199-3	Patent No. 5424199

ALIGNMENTS

RESULT 1

US-08-093-383-1

; Sequence 1, Application US/08093383

; Patent No. 5489529

; GENERAL INFORMATION:

; APPLICANT: DeBoer, Herman A.

; APPLICANT: Heyneker, Herbert L.

; APPLICANT: Seeburg, Peter H.

; TITLE OF INVENTION: DNA for Expression of Bovine Growth Hormone

; NUMBER OF SEQUENCES: 30

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Genentech, Inc.

; STREET: 460 Point San Bruno Blvd

; CITY: South San Francisco

; STATE: California

; COUNTRY: USA

; ZIP: 94080

; COMPUTER READABLE FORM:

```

; MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: patin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/093,383
; FILING DATE: 14-JUL-1993
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/619827
; FILING DATE: 28-NOV-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/198824
; FILING DATE: 05-APR-1988
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 06/632361
; FILING DATE: 19-JUL-1984
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 06/303687
; FILING DATE: 18-SEP-1981
; ATTORNEY/AGENT INFORMATION:
; NAME: Johnston, Sean A.
; REGISTRATION NUMBER: P35,910
; REFERENCE/DOCKET NUMBER: 46C4
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 415/225-3562
; TELEFAX: 415/952-9881
; TELEX: 910/371-7168
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 192 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
US-08-093-383-1

```

```

Query Match          58.5%; Score 466; DB 1; Length 192;
Best Local Similarity 70.5%; Pred. No. 1.9e-42;
Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```

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Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
        ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60

Qy     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPREFVNQHLCGS-----HLV 110
        ||||||||||||||||||||||||||||| | | : | : |
Db     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119

Qy    111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
        | : : | | | : | : |
Db    120 EGIQTLMGRLDG---SPRTGQIFKQ 142

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```

RESULT 2
US-09-949-016-8660
; Sequence 8660, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:

```

```
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES
THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 8660
; LENGTH: 242
; TYPE: PRT
; ORGANISM: Human
US-09-949-016-8660
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```
Query Match          58.1%; Score 463; DB 4; Length 242;
Best Local Similarity 65.2%; Pred. No. 5.5e-42;
Matches 103; Conservative 8; Mismatches 27; Indels 20; Gaps 4;
```

```
Qy      2 FPTIPLSRLEFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          |||
Db      56 FPTIPLSRLEFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 115

Qy      62 PSNREETQQKSNLELLRISLLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
          |||
Db      116 PSNREETQQKSNLELLRISLLLLIQSWLEPVQF-LRSVFANSILVYGASDSNVYDLLKDLLE 174

Qy      112 ALYLVCGERGEFFYTPK-----TRGIVEQCCTSICSLY 143
          : : | | | : : | : | :
Db      175 GIQTIMGVRVAPGVPNPGAPLTLRAVLEKHC---CPLF 209
```

RESULT 3

```
US-09-949-016-8661
; Sequence 8661, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES
THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
```


; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 8661
; LENGTH: 242
; TYPE: PRT
; ORGANISM: Human
US-09-949-016-8661

Query Match 58.1%; Score 463; DB 4; Length 242;
Best Local Similarity 65.2%; Pred. No. 5.5e-42;
Matches 103; Conservative 8; Mismatches 27; Indels 20; Gaps 4;

```
Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      56  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 115

Qy      62  PSNREETQQKSNLELLRLISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
          ||||||||||||||||||||||||||||| | | : | : | |
Db     116  PSNREETQQKSNLELLRLISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLLE 174

Qy     112  ALYLVCGERGFFYTPK-----TRGIVEQCCTSICSLY 143
          : : | | | | | : : | | | :
Db     175  GIQTIMGVRVAPGVPNPGAPLTLRAVLEKHC---CPLF 209
```

RESULT 4

US-09-949-016-8662
; Sequence 8662, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 8662
; LENGTH: 242
; TYPE: PRT
; ORGANISM: Human
US-09-949-016-8662

Query Match 58.1%; Score 463; DB 4; Length 242;
Best Local Similarity 65.2%; Pred. No. 5.5e-42;
Matches 103; Conservative 8; Mismatches 27; Indels 20; Gaps 4;

```
Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      56  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 115
```

```

Qy      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
        ||||||||||||||||||||||||||||| | | : | : | |
Db      116 PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDL EE 174

Qy      112 ALYLVCGERGFFYTPK-----TRGIVEQCCTSICSLY 143
        : : | | | | | : | : | | | :
Db      175 GIQTLMGVRVAPGVPNPGAPLTLRAVLEKHC---CPLF 209

```

RESULT 5

```

US-09-949-016-8663
; Sequence 8663, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES
THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 8663
; LENGTH: 242
; TYPE: PRT
; ORGANISM: Human
US-09-949-016-8663

```

```

Query Match          58.1%; Score 463; DB 4; Length 242;
Best Local Similarity 65.2%; Pred. No. 5.5e-42;
Matches 103; Conservative 8; Mismatches 27; Indels 20; Gaps 4;

```

```

Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
        ||||||||||||||||||||||||||||| | | : | : | |
Db      56 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 115

Qy      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
        ||||||||||||||||||||||||||||| | | : | : | |
Db      116 PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDL EE 174

Qy      112 ALYLVCGERGFFYTPK-----TRGIVEQCCTSICSLY 143
        : : | | | | | : | : | | | :
Db      175 GIQTLMGVRVAPGVPNPGAPLTLRAVLEKHC---CPLF 209

```

RESULT 6

```

US-09-949-016-8664
; Sequence 8664, Application US/09949016
; Patent No. 6812339

```

```
; GENERAL INFORMATION:
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES
THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 8664
; LENGTH: 242
; TYPE: PRT
; ORGANISM: Human
US-09-949-016-8664
```

```
Query Match          58.1%; Score 463; DB 4; Length 242;
Best Local Similarity 65.2%; Pred. No. 5.5e-42;
Matches 103; Conservative 8; Mismatches 27; Indels 20; Gaps 4;
```

```
Qy      2 FFTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          |||
Db      56 FFTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSLQFSESIPT 115

Qy      62 PSNREETQQKSNLELLRISLLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
          |||
Db      116 PSNREETQQKSNLELLRISLLLLIQSWLEPVQF-LRSVFANSILVYGASDSNVYDLLKDLEE 174

Qy      112 ALYLVCGERGFFYTPK-----TRGIVEQCCTSICSLY 143
          : : | | | : : | : | :
Db      175 GIQTLMGVRVAPGVPNPGAPLTLRAVLEKHC---CPLF 209
```

RESULT 7

```
US-09-284-878-5
; Sequence 5, Application US/09284878
; Patent No. 6342375
; GENERAL INFORMATION:
; APPLICANT: Olazaran, Martha Guerrero
; APPLICANT: Saldana, Hugo Barrera
; APPLICANT: Salvado, Jose Maria Viader
; TITLE OF INVENTION: Genetically Modified Methylophilic P. pastoris Yeast
for the
; TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone
; FILE REFERENCE: 1829.0010000
; CURRENT APPLICATION NUMBER: US/09/284,878
; CURRENT FILING DATE: 1999-07-21
; PRIOR APPLICATION NUMBER: PCT/MX97/00033
; PRIOR FILING DATE: 1997-10-24
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: PatentIn Ver. 2.1
```

; SEQ ID NO 5
; LENGTH: 191
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-284-878-5

Query Match 57.8%; Score 461; DB 3; Length 191;
Best Local Similarity 70.3%; Pred. No. 6.6e-42;
Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```
Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
          ||||||||||||||||||||||||||||| | | : | : | |
Db      61  PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDL EE 119

Qy     112  ALYLVCG--ERGFFYTPKTRGIVEQ 134
          : : | | | : | : | | : |
Db     120  GIQTLMGRLEDG---SPRTGQIFKQ 141
```

RESULT 8

US-09-462-941-1
; Sequence 1, Application US/09462941
; Patent No. 6608183
; GENERAL INFORMATION:
; APPLICANT: Cox III, George N
; APPLICANT: Bolder Biotechnology, Inc.
; TITLE OF INVENTION: Derivatives of Growth Hormone and Related Proteins
; FILE REFERENCE: 4152-1-PUS
; CURRENT APPLICATION NUMBER: US/09/462,941
; CURRENT FILING DATE: 2000-01-14
; PRIOR APPLICATION NUMBER: 60/052,516
; PRIOR FILING DATE: 1997-07-14
; NUMBER OF SEQ ID NOS: 41
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 1
; LENGTH: 191
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-462-941-1

Query Match 57.8%; Score 461; DB 4; Length 191;
Best Local Similarity 70.3%; Pred. No. 6.6e-42;
Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```
Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 60

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
          ||||||||||||||||||||||||||||| | | : | : | |
Db      61  PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDL EE 119

Qy     112  ALYLVCG--ERGFFYTPKTRGIVEQ 134
```

: : | | | : | : | | : |
Db 120 GIQTLMGRLEDG---SPRTGQIFKQ 141

RESULT 9

US-08-383-621-4

; Sequence 4, Application US/08383621

; Patent No. 5951972

; GENERAL INFORMATION:

; APPLICANT: Daley, Michael J.

; APPLICANT: Buckwalter, Brian L.

; APPLICANT: Cady, Susan M.

; APPLICANT: Shieh, Hong-Ming

; APPLICANT: Bohlen, Peter

; APPLICANT: Seddon, Andrew P.

; TITLE OF INVENTION: Stabilization Of Somatotropins And Other

; TITLE OF INVENTION: Proteins By Modification Of Cysteine Residues

; NUMBER OF SEQUENCES: 11

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Dr. Estelle J. Tsevdos

; STREET: 1937 West Main Street, P.O. Box 60

; CITY: Stamford

; STATE: Connecticut

; COUNTRY: U.S.A.

; ZIP: 06904-0060

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: PatentIn Release #1.0, Version #1.25

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/383,621

; FILING DATE: 06-FEB-1995

; CLASSIFICATION: 514

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: US 07/766,142

; FILING DATE: 25-SEP-1991

; ATTORNEY/AGENT INFORMATION:

; NAME: Tsevdos, Estelle J.

; REGISTRATION NUMBER: 31,145

; REFERENCE/DOCKET NUMBER: 31,278-01

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: 203-321-2756

; TELEFAX: 203-321-2971

; TELEX: 203-710-474-4059

; INFORMATION FOR SEQ ID NO: 4:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 194 amino acids

; TYPE: amino acid

; TOPOLOGY: linear

; MOLECULE TYPE: protein

US-08-383-621-4

Query Match 57.8%; Score 461; DB 2; Length 194;

Best Local Similarity 70.3%; Pred. No. 6.8e-42;

Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

Qy 2 FPTIPLSR LFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
 |||
 Db 4 FPTIPLSR LFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 63
 |||
 Qy 62 PSNREETQQKSNLELLRLISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
 ||| : | : |
 Db 64 PSNREETQQKSNLELLRLISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLLE 122
 |||
 Qy 112 ALYLVCG--ERGFFYTPKTRGIVEQ 134
 : : | | : | : |
 Db 123 GIQTLMGRLEDG---SPRTGQIFKQ 144

RESULT 10

US-08-459-906-4

; Sequence 4, Application US/08459906

; Patent No. 6010999

; GENERAL INFORMATION:

; APPLICANT: Daley, Michael J.

; APPLICANT: Buckwalter, Brian L.

; APPLICANT: Cady, Susan M.

; APPLICANT: Shieh, Hong-Ming

; APPLICANT: Bohlen, Peter

; APPLICANT: Seddon, Andrew P.

; TITLE OF INVENTION: Stabilization of Somatotropins and Other

; TITLE OF INVENTION: Proteins by Modification of Cysteine Residues

; NUMBER OF SEQUENCES: 11

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: American Cyanamid Company

; STREET: One Cyanamid Plaza

; CITY: Wayne

; STATE: New Jersey

; COUNTRY: U.S.A.

; ZIP: 07470-8426

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: PatentIn Release #1.0, Version #1.25

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/459,906

; FILING DATE: 02-JUN-1995

; CLASSIFICATION: 514

; ATTORNEY/AGENT INFORMATION:

; NAME: Webster, Darryl L.

; REGISTRATION NUMBER: 34,276

; REFERENCE/DOCKET NUMBER: 31,278-03

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: 201-831-3247

; TELEFAX: 201-831-3305

; INFORMATION FOR SEQ ID NO: 4:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 194 amino acids

; TYPE: amino acid

; TOPOLOGY: linear

; MOLECULE TYPE: protein

US-08-459-906-4

Query Match 57.8%; Score 461; DB 3; Length 194;
 Best Local Similarity 70.3%; Pred. No. 6.8e-42;
 Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```

Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
        ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      4 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 63

Qy     62 PSNREETQQKSNLELLRLISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
        ||||||||||||||||||||||||||||| | | : | : | |
Db     64 PSNREETQQKSNLELLRLISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLEE 122

Qy    112 ALYLVCG--ERGFYTPKTRGIVEQ 134
        : : | | | : | | | : |
Db    123 GIQTLMGRLLEDG---SPRTGQIFKQ 144
  
```

RESULT 11

US-08-589-028-10

```

; Sequence 10, Application US/08589028
; Patent No. 6087129
; GENERAL INFORMATION:
;   APPLICANT: Newgard, Christopher B.
;   APPLICANT: Halban, Philippe
;   APPLICANT: No. 6087129mington, Karl D.
;   APPLICANT: Clark, Samuel A.
;   APPLICANT: Thigpen, Anice E.
;   APPLICANT: Quaade, Christian
;   APPLICANT: Kruse, Fred
;   TITLE OF INVENTION: Recombinant Expression of Proteins From
;   TITLE OF INVENTION: Secretory Cell Lines
;   NUMBER OF SEQUENCES: 50
;   CORRESPONDENCE ADDRESS:
;     ADDRESSEE: Arnold, White & Durkee
;     STREET: P. O. Box 4433
;     CITY: Houston
;     STATE: TX
;     COUNTRY: USA
;     ZIP: 77210-4433
;   COMPUTER READABLE FORM:
;     MEDIUM TYPE: Floppy disk
;     COMPUTER: IBM PC compatible
;     OPERATING SYSTEM: PC-DOS/MS-DOS
;     SOFTWARE: PatentIn Release #1.0, Version #1.30
;   CURRENT APPLICATION DATA:
;     APPLICATION NUMBER: US/08/589,028
;     FILING DATE: Concurrently Herewith
;     CLASSIFICATION: 435
;   ATTORNEY/AGENT INFORMATION:
;     NAME: Highlander, Steven L.
;     REGISTRATION NUMBER: 47,642
;     REFERENCE/DOCKET NUMBER: UTSD:426\HYL
;   TELECOMMUNICATION INFORMATION:
;     TELEPHONE: (512) 418-3000
;     TELEFAX: (512) 474-7577
; INFORMATION FOR SEQ ID NO: 10:
  
```

```

; SEQUENCE CHARACTERISTICS:
;   LENGTH: 217 amino acids
;   TYPE: amino acid
;   STRANDEDNESS:
;   TOPOLOGY: linear
US-08-589-028-10

```

Query Match 57.8%; Score 461; DB 3; Length 217;
Best Local Similarity 70.3%; Pred. No. 7.8e-42;
Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

Qy	2	FPTIPLSRLFDNAMLRAHRLHQLAFD	TYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT	61
Db	27	FPTIPLSRLFDNAMLRAHRLHQLAFD	TYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT	86
Qy	62	PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----	HLVE	111
Db	87	PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDL	EE	145
Qy	112	ALYLVCG--ERGFFYTPKTRGIVEQ		134
		: : : :		
Db	146	GIQTLMGRLEDG---SPRTGQIFKQ		167

RESULT 12

US-08-784-582-10

; Sequence 10, Application US/08784582

; Patent No. 6110707

; GENERAL INFORMATION:

; APPLICANT: Newgard, Christopher B.

; APPLICANT: Halban, Philippe A.

; APPLICANT: No. 6110707mington, Karl D.

; APPLICANT: Clark, Samuel A.

; APPLICANT: Thigpen, Anice E.

; APPLICANT: Quaade, Christian

; APPLICANT: Kruse, Fred

; APPLICANT: McGarry, Dennis

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84

; TITLE OF INVENTION: SECRETORY CELL LINES

; NUMBER OF SEQUENCES: 79

CORRESPONDENCE ADDRESS:

ADDRESSEE: Arnold, White & Durkee

STREET: P.O. Box 4433

CITY: Houston

STATE: Texas

COUNTRY: USA

; ZIP: 77210

; COMPUTER READ

```

; MEDIUM TYPE: Floppy

```

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: COMPUTER: IBM PC compatible

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;
; OPERATING SYSTEM:  PC-DOS/MS-DOS

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;      SOFTWARE:  PatentIn Release #1.0, Version #1.30

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CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/784,582

; FILING DATE: Concurrently Herewith

CLASSIFICATION: 435

; PRIOR APPLICATION DATA:


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; APPLICATION NUMBER: US 60/028,427
; FILING DATE: 15-OCT-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/589,028
; FILING DATE: 19-JAN-1996
; ATTORNEY/AGENT INFORMATION:
; NAME: Highlander, Steven L.
; REGISTRATION NUMBER: 37,642
; REFERENCE/DOCKET NUMBER: UTSD:514
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 512/418-3000
; TELEFAX: 512/474-7577
; INFORMATION FOR SEQ ID NO: 10:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 217 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
US-08-784-582-10
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Query Match          57.8%; Score 461; DB 3; Length 217;
Best Local Similarity 70.3%; Pred. No. 7.8e-42;
Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps 4;
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Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
        ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      27 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 86

Qy      62 PSNREETQQKSNLELLRLISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
        ||||||||||||||||||||||||||||| | | : | : | |
Db      87 PSNREETQQKSNLELLRLISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLLE 145

Qy     112 ALYLVCG--ERGFFYTPKTRGIVEQ 134
        : : | | | : | : | : |
Db     146 GIQTLMGRLLEDG---SPRTGQIFKQ 167
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RESULT 13

US-08-785-271-10

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; Sequence 10, Application US/08785271
; Patent No. 6194176
; GENERAL INFORMATION:
; APPLICANT: Newgard, Christopher B.
; APPLICANT: Halban, Philippe A.
; APPLICANT: No. 6194176mington, Karl D.
; APPLICANT: Clark, Samuel A.
; APPLICANT: Thigpen, Anice E.
; APPLICANT: Quaade, Christian
; APPLICANT: Kruse, Fred
; TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
; TITLE OF INVENTION: SECRETORY CELL LINES
; NUMBER OF SEQUENCES: 56
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Arnold, White & Durkee
; STREET: P.O. Box 4433
; CITY: Houston
; STATE: Texas
```

```

; COUNTRY: USA
; ZIP: 77210
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/785,271
; FILING DATE: Concurrently Herewith
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/589,028
; FILING DATE: 19-JAN-1996
; ATTORNEY/AGENT INFORMATION:
; NAME: Highlander, Steven L.
; REGISTRATION NUMBER: 37,642
; REFERENCE/DOCKET NUMBER: UTSD:513
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 512/418-3000
; TELEFAX: 512/474-7577
; INFORMATION FOR SEQ ID NO: 10:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 217 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
US-08-785-271-10

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Query Match          57.8%; Score 461; DB 3; Length 217;
Best Local Similarity 70.3%; Pred. No. 7.8e-42;
Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

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Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSES IPT 61
        |||||||
Db      27  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSES IPT 86

Qy      62  PSNREETQQKS NLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
        |||||||
Db      87  PSNREETQQKS NLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDL EE 145

Qy      112  ALYLVCG--ERGFFYTPKTRGIVEQ 134
        : : | | | :|:| | :|
Db      146  GIQTLMGRL EDG---SPRTGQIFKQ 167

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RESULT 14

US-08-759-628-11

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; Sequence 11, Application US/08759628
; Patent No. 6225446
; GENERAL INFORMATION:
; APPLICANT: Altmann, Scott W.
; APPLICANT: Rock, Fernando L.
; APPLICANT: Bazan, J. Fernando
; APPLICANT: Kastelein, Robert A.
; TITLE OF INVENTION: MUTATIONAL VARIANTS OF MAMMLIAN PROTEINS
; NUMBER OF SEQUENCES: 11

```

```

; CORRESPONDENCE ADDRESS:
; ADDRESSEE: DNAX Research Institute
; STREET: 901 California Avenue
; CITY: Palo Alto
; STATE: California
; COUNTRY: USA
; ZIP: 94304-1104
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/759,628
; FILING DATE: 05-DEC-1996
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/008,574
; FILING DATE: 06-DEC-1995
; ATTORNEY/AGENT INFORMATION:
; NAME: Ching, Edwin P.
; REGISTRATION NUMBER: 34,090
; REFERENCE/DOCKET NUMBER: DX0552Q
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 415-852-9196
; TELEFAX: 415-496-1200
; INFORMATION FOR SEQ ID NO: 11:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 217 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; FEATURE:
; NAME/KEY: Peptide
; LOCATION: 32..53
; FEATURE:
; NAME/KEY: Peptide
; LOCATION: 94..115
; FEATURE:
; NAME/KEY: Peptide
; LOCATION: 133..153
; FEATURE:
; NAME/KEY: Peptide
; LOCATION: 192..210
; OTHER INFORMATION: /note= "The peptides above are
; OTHER INFORMATION: depicted in Figure 1"
US-08-759-628-11

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Query Match          57.8%; Score 461; DB 3; Length 217;
Best Local Similarity 70.3%; Pred. No. 7.8e-42;
Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

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Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
        ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

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Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
 ||| : ||
 Db 87 PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDL EE 145

Qy 112 ALYLVCG--ERGFFYTPKTRGIVEQ 134
 : : | | :| :|
 Db 146 GIQTLMGRLEDG---SPRTGQIFKQ 167

RESULT 15

US-09-284-878-1
 ; Sequence 1, Application US/09284878
 ; Patent No. 6342375
 ; GENERAL INFORMATION:
 ; APPLICANT: Olazaran, Martha Guerrero
 ; APPLICANT: Saldana, Hugo Barrera
 ; APPLICANT: Salvado, Jose Maria Viader
 ; TITLE OF INVENTION: Genetically Modified Methylophilic P. pastoris Yeast
 for the
 ; TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone
 ; FILE REFERENCE: 1829.0010000
 ; CURRENT APPLICATION NUMBER: US/09/284,878
 ; CURRENT FILING DATE: 1999-07-21
 ; PRIOR APPLICATION NUMBER: PCT/MX97/00033
 ; PRIOR FILING DATE: 1997-10-24
 ; NUMBER OF SEQ ID NOS: 9
 ; SOFTWARE: PatentIn Ver. 2.1
 ; SEQ ID NO 1
 ; LENGTH: 217
 ; TYPE: PRT
 ; ORGANISM: Homo sapiens
 US-09-284-878-1

Query Match 57.8%; Score 461; DB 3; Length 217;
 Best Local Similarity 70.3%; Pred. No. 7.8e-42;
 Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
 ||| : |||
 Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
 ||| : |||
 Db 87 PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDL EE 145

Qy 112 ALYLVCG--ERGFFYTPKTRGIVEQ 134
 : : | | :| :|
 Db 146 GIQTLMGRLEDG---SPRTGQIFKQ 167

Search completed: March 9, 2005, 04:51:53
 Job time : 41.4059 secs

GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: March 9, 2005, 01:51:53 ; Search time 28.7823 Seconds
(without alignments)
501.437 Million cell updates/sec

Title: US-10-054-873-7
Perfect score: 797
Sequence: 1 MFPTIPLSRLEFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 150

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_79:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	461	57.8	217	1	STHU	somatotropin 1 pre
2	460	57.7	217	2	I67410	somatotropin - rhe
3	426.5	53.5	217	1	STHUV	somatotropin 2 pre
4	426.5	53.5	256	1	STHUV2	somatotropin 2 pre
5	407.5	51.1	217	2	I67409	chorionic somatoma
6	405	50.8	217	2	I67411	somatotropin - rhe
7	396	49.7	212	2	I67408	chorionic somatoma
8	396	49.7	217	2	I53267	chorionic somatoma
9	381	47.8	217	1	LCHUC	choriomammotropin
10	381	47.8	217	2	E32435	choriomammotropin
11	359.5	45.1	215	2	A26449	choriomammotropin
12	310.5	39.0	216	2	B49159	somatotropin - gol
13	307.5	38.6	190	2	PN0140	somatotropin - sei

14	306.5	38.5	190	1	STHO	somatotropin - hor
15	304.5	38.2	216	1	STMS	somatotropin precu
16	302.5	38.0	216	1	STRT	somatotropin precu
17	302.5	38.0	216	2	S49483	somatotropin precu
18	301.5	37.8	190	2	JK0219	somatotropin - Afr
19	301.5	37.8	216	1	STPG	somatotropin precu
20	301.5	37.8	216	2	I46145	somatotropin precu
21	301.5	37.8	216	2	JC4632	somatotropin precu
22	299.5	37.6	216	2	A37782	somatotropin precu
23	297.5	37.3	190	1	A61584	somatotropin - alp
24	295.5	37.1	190	2	JS0429	somatotropin - Arc
25	289.5	36.3	217	1	STBO	somatotropin precu
26	289.5	36.3	217	1	STGT	somatotropin precu
27	289.5	36.3	217	1	STSH	somatotropin precu
28	289.5	36.3	217	2	S32682	somatotropin - dom
29	278.5	34.9	216	2	JC1514	somatotropin precu
30	277.5	34.8	110	1	INRB	insulin precursor
31	277.5	34.8	110	2	B42179	insulin precursor
32	275.5	34.6	216	2	A60509	somatotropin precu
33	275	34.5	96	2	PC7082	epidermal growth f
34	273.5	34.3	51	1	INEL	insulin - elephant
35	273.5	34.3	51	1	INWHF	insulin - finback
36	273.5	34.3	51	1	INWHP	insulin - sperm wh
37	273.5	34.3	110	2	JQ0178	insulin precursor
38	272	34.1	110	2	A42179	insulin precursor
39	271.5	34.1	51	1	INHY	insulin - hamster
40	270	33.9	110	1	IPHU	insulin precursor
41	268.5	33.7	51	1	INMSSP	insulin - Egyptian
42	268.5	33.7	191	2	A60625	somatotropin - gre
43	267.5	33.6	51	2	A59151	insulin precursor
44	266.5	33.4	105	1	IPBO	insulin precursor
45	265.5	33.3	110	2	I48166	insulin precursor

ALIGNMENTS

RESULT 1

STHU

somatotropin 1 precursor [validated] - human

N;Alternate names: growth hormone 1; hGH-N; pituitary somatotropin

N;Contains: growth hormone 5K peptide; somatotropin 1, long form; somatotropin 1, short form

C;Species: Homo sapiens (man)

C;Date: 24-Apr-1984 #sequence_revision 10-Feb-1995 #text_change 09-Jul-2004

C;Accession: A93731; A32435; A93694; A94247; A90051; A93397; A93778; A91764; A90217; A92311; A61466; S09685; I84549; A01510

R;DeNoto, F.M.; Moore, D.D.; Goodman, H.M.

Nucleic Acids Res. 9, 3719-3730, 1981

A;Title: Human growth hormone DNA sequence and mRNA structure: possible alternative splicing.

A;Reference number: A93731; MUID:82014939; PMID:6269091

A;Accession: A93731

A;Molecule type: DNA

A;Residues: 1-217 <DEN>

A;Cross-references: UNIPROT:P01241; GB:V00520

A;Note: the 20K short form somatotropin lacks residues 58-72 (32-46 in the active hormone) as the result of splicing at the alternate junction of the second intron during mRNA processing
R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.
Genomics 4, 479-497, 1989
A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.
A;Reference number: A32435; MUID:89307277; PMID:2744760
A;Accession: A32435
A;Molecule type: DNA
A;Residues: 1-217 <CHE>
A;Cross-references: GB:J03071; NID:g183148; PIDN:AAA52549.1; PID:g183149
R;Roskam, W.; Rougeon, F.
Nucleic Acids Res. 7, 305-320, 1979
A;Title: Molecular cloning and nucleotide sequence of the human growth hormone structural gene.
A;Reference number: A93694; MUID:80034477; PMID:386281
A;Accession: A93694
A;Molecule type: mRNA
A;Residues: 1-217 <ROS>
A;Cross-references: GB:V00519
A;Note: 35-Pro was also found
R;Martial, J.A.; Hallewell, R.A.; Baxter, J.D.; Goodman, H.M.
Science 205, 602-607, 1979
A;Title: Human growth hormone: complementary DNA cloning and expression in bacteria.
A;Reference number: A94247; MUID:79203293; PMID:377496
A;Accession: A94247
A;Molecule type: mRNA
A;Residues: 1-217 <MAR>
R;Li, C.H.; Dixon, J.S.; Liu, W.K.
Arch. Biochem. Biophys. 133, 70-91, 1969
A;Title: Human pituitary growth hormone. XIX. The primary structure of the hormone.
A;Reference number: A90048; MUID:69289202; PMID:5810834
A;Contents: annotation
R;Li, C.H.; Dixon, J.S.
Arch. Biochem. Biophys. 146, 233-236, 1971
A;Title: Human pituitary growth hormone. XXXII. The primary structure of the hormone: revision.
A;Reference number: A90051; MUID:72143935; PMID:5144027
A;Accession: A90051
A;Molecule type: protein
A;Residues: 27-94;96-217 <LIC>
R;Niall, H.D.
Nature New Biol. 230, 90-91, 1971
A;Title: Revised primary structure for human growth hormone.
A;Reference number: A93397; MUID:71139765; PMID:5279046
A;Accession: A93397
A;Molecule type: protein
A;Residues: 27-51 <NIA>
R;Niall, H.D.; Hogan, M.L.; Sauer, R.; Rosenblum, I.Y.; Greenwood, F.C.
Proc. Natl. Acad. Sci. U.S.A. 68, 866-869, 1971
A;Title: Sequences of pituitary and placental lactogenic and growth hormones: evolution from a primordial peptide by gene reduplication.
A;Reference number: A93778; MUID:71153968; PMID:5279528

A;Accession: A93778
 A;Molecule type: protein
 A;Residues: 119-120;157-159 <NI2>
 R;Niall, H.D.
 in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin,
 Griffiths, K., ed., pp.13-20, Alpha Omega Alpha Press, Cardiff, Wales, 1972
 A;Title: The chemistry of the human lactogenic hormones.
 A;Reference number: A94427
 A;Contents: annotation; somatotropin revision
 R;Bewley, T.A.; Dixon, J.S.; Li, C.H.
 Int. J. Pept. Protein Res. 4, 281-287, 1972
 A;Title: Sequence comparison of human pituitary growth hormone, human chorionic
 somatomammotropin, and ovine pituitary growth and lactogenic hormones.
 A;Reference number: A91764; MUID:73092028; PMID:4675454
 A;Accession: A91764
 A;Molecule type: protein
 A;Residues: 27-217 <BEW>
 R;Lewis, U.J.; Bonewald, L.F.; Lewis, L.J.
 Biochem. Biophys. Res. Commun. 92, 511-516, 1980
 A;Title: The 20,000-dalton variant of human growth hormone: location of the
 amino acid deletions.
 A;Reference number: A90217; MUID:80130196; PMID:7356479
 A;Contents: somatotropin, 20K short variant
 A;Accession: A90217
 A;Molecule type: protein
 A;Residues: 46-57;73-80 <LEW>
 R;Chapman, G.E.; Rogers, K.M.; Brittain, T.; Bradshaw, R.A.; Bates, O.J.;
 Turner, C.; Cary, P.D.; Crane-Robinson, C.
 J. Biol. Chem. 256, 2395-2401, 1981
 A;Title: The 20,000 molecular weight variant of human growth hormone.
 Preparation and some physical and chemical properties.
 A;Reference number: A92311; MUID:81117361; PMID:7462247
 A;Contents: somatotropin, 20K short variant
 A;Accession: A92311
 A;Molecule type: protein
 A;Residues: 27-57;73-79 <CHA>
 R;Singh, R.N.P.; Seavey, B.K.; Lewis, L.J.; Lewis, U.J.
 J. Protein Chem. 2, 425-436, 1983
 A;Title: Human growth hormone peptide 1-43: isolation from pituitary glands.
 A;Reference number: A61466
 A;Accession: A61466
 A;Molecule type: protein
 A;Residues: 27-69 <SIN>
 A;Note: growth hormone 5K peptide has insulin potentiating activity; its
 physiological production is uncertain
 R;Robson, V.M.J.; Rae, I.D.; NG, F.
 Biol. Chem. Hoppe-Seyler 371, 423-431, 1990
 A;Title: Identification of the aspartimide structure in a previously-reported
 peptide.
 A;Reference number: S09685; MUID:90334745; PMID:2378679
 A;Accession: S09685
 A;Molecule type: protein
 A;Residues: 27-34,'L',36-47 <ROB>
 R;de Vos, A.M.; Ultsch, M.; Kossiakoff, A.A.
 Science 255, 306-312, 1992
 A;Title: Human growth hormone and extracellular domain of its receptor: crystal
 structure of the complex.

A;Reference number: A41728; MUID:92196577; PMID:1549776
A;Contents: annotation; X-ray crystallography, 2.8 angstroms
A;Note: the structure of the complex with growth hormone receptor is described
R;Gray, G.L.; Baldrige, J.S.; McKeown, K.S.; Heyneker, H.L.; Chang, C.N.
Gene 39, 247-254, 1985
A;Title: Periplasmic production of correctly processed human growth hormone in
Escherichia coli: natural and bacterial signal sequences are interchangeable.
A;Reference number: I41126; MUID:86137393; PMID:3912261
A;Accession: I84549
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-26 <RES>
A;Cross-references: GB:M14398; NID:g183158; PIDN:AAA52554.1; PID:g183159
C;Comment: The gene for this hormone is transcribed only in somatotrophic cells
of the anterior pituitary.
C;Comment: About 90% of somatotropin is the 22K long form.
C;Genetics:
A;Gene: GDB:GH1
A;Cross-references: GDB:119982; OMIM:139250
A;Map position: 17q23.1-17q23.3
A;Introns: 4/1; 57/3; 97/3; 152/3
C;Superfamily: prolactin
C;Keywords: alternative splicing; hormone; pituitary
F;1-26/Domain: signal sequence #status predicted <SIG>
F;27-217/Product: somatotropin 1, long form #status experimental <SOL>
F;27-69/Product: growth hormone 5K peptide #status experimental <5KP>
F;27-57,73-217/Product: somatotropin 1, short form #status experimental <SOS>
F;79-191,208-215/Disulfide bonds: #status experimental

Query Match 57.8%; Score 461; DB 1; Length 217;
Best Local Similarity 70.3%; Pred. No. 2.8e-37;
Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

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Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIPT 61
          |||
Db      27  FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSLSESIPT 86

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
          |||
Db      87  PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLEE 145

Qy     112  ALYLVCG--ERGFFYTPKTRGIVEQ 134
          : : | | | :|:| | :|
Db     146  GIQTLMGRLEDG---SPRTGQIFKQ 167

```

RESULT 2

I67410

somatotropin - rhesus macaque

N;Alternate names: growth hormone

C;Species: Macaca mulatta (rhesus macaque)

C;Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 09-Jul-2004

C;Accession: I67410; A05094

R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.

Endocrinology 133, 1744-1752, 1993

A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.

A;Reference number: I53267; MUID:94008724; PMID:8404617

A;Accession: I67410

A;Status: translated from GB/EMBL/DDBJ

A;Molecule type: mRNA

A;Residues: 1-217 <RES>

A;Cross-references: UNIPROT:P33093; GB:L16556; NID:g293114; PIDN:AAA18842.1; PID:g293115

R;Li, C.H.; Chung, D.; Lahm, H.W.; Stein, S.

Arch. Biochem. Biophys. 245, 287-291, 1986

A;Title: The primary structure of monkey pituitary growth hormone.

A;Reference number: A05094; MUID:86129460; PMID:3080959

A;Accession: A05094

A;Molecule type: protein

A;Residues: 27-99,'Q',101-178,'D',180-217 <LIC>

A;Note: the monkey species is not identified in the reference

R;Raben, M.S.

Science 125, 883-884, 1957

A;Title: Preparation of growth hormone from pituitaries of man and monkey.

A;Reference number: A44774

A;Contents: annotation; identification of source organism

C;Superfamily: prolactin

Query Match 57.7%; Score 460; DB 2; Length 217;

Best Local Similarity 98.9%; Pred. No. 3.5e-37;

Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61

|||||

Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 86

Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

|||||

Db 87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117

RESULT 3

STHUV

somatotropin 2 precursor - human

N;Alternate names: growth hormone 2; growth hormone variant; hGH-V; placental somatotropin

N;Contains: somatotropin 2, long splice form; somatotropin 2, short splice form

C;Species: Homo sapiens (man)

C;Date: 17-Dec-1982 #sequence_revision 10-Feb-1995 #text_change 09-Jul-2004

C;Accession: D32435; B28072; A01511; I52104; A60711

R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.

Genomics 4, 479-497, 1989

A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.

A;Reference number: A32435; MUID:89307277; PMID:2744760

A;Accession: D32435

A;Molecule type: DNA

A;Residues: 1-217 <CHE>

A;Cross-references: UNIPROT:P01242; GB:J03071; NID:g183148; PIDN:AAA52552.1; PID:g183152
 R;Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaber, S.A.
 J. Biol. Chem. 263, 9001-9006, 1988
 A;Title: Two distinct species of human growth hormone-variant mRNA in the human placenta predict the expression of novel growth hormone proteins.
 A;Reference number: A92725; MUID:88243769; PMID:3379057
 A;Accession: B28072
 A;Molecule type: mRNA
 A;Residues: 1-217 <COO>
 R;Seeburg, P.H.
 DNA 1, 239-249, 1982
 A;Title: The human growth hormone gene family: nucleotide sequences show recent divergence and predict a new polypeptide hormone.
 A;Reference number: A01511; MUID:83182010; PMID:7169009
 A;Accession: A01511
 A;Molecule type: DNA
 A;Residues: 1-34,'P',36-217 <SEE>
 R;Igout, A.; Scippo, M.L.; Frankenke, F.; Hennen, G.
 Arch. Int. Physiol. Biochim. 96, 63-67, 1988
 A;Title: Cloning and nucleotide sequence of placental hGH-V cDNA.
 A;Reference number: I52104; MUID:89024984; PMID:2460050
 A;Accession: I52104
 A;Status: preliminary; translated from GB/EMBL/DDBJ
 A;Molecule type: mRNA
 A;Residues: 1-217 <IGO>
 A;Cross-references: GB:M38451; NID:g183179; PIDN:AAA35891.1; PID:g183180
 R;Frankenne, F.; Scippo, M.L.; Van Beeumen, J.; Igout, A.; Hennen, G.
 J. Clin. Endocrinol. Metab. 71, 15-18, 1990
 A;Title: Identification of placental human growth hormone as the growth hormone-V gene expression product.
 A;Reference number: A60711; MUID:90317018; PMID:2196278
 A;Accession: A60711
 A;Molecule type: protein
 A;Residues: 27-44;46-57 <FRA>
 A;Experimental source: tissue placenta
 A;Note: partial glycosylation was demonstrated by lectin binding
 C;Comment: This gene is expressed by the placenta.
 C;Genetics:
 A;Gene: GDB:GH2
 A;Cross-references: GDB:119983; OMIM:139240
 A;Map position: 17q22-17q24
 A;Introns: 4/1; 57/3; 97/3; 152/3
 C;Superfamily: prolactin
 C;Keywords: alternative splicing; glycoprotein; hormone; placenta
 F;1-26/Domain: signal sequence #status predicted <SIG>
 F;27-217/Product: somatotropin 2, long splice form #status predicted <SOL>
 F;27-57,73-217/Product: somatotropin 2, short splice form #status predicted <SOS>
 F;79-191,208-215/Disulfide bonds: #status predicted
 F;166/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 53.5%; Score 426.5; DB 1; Length 217;
 Best Local Similarity 78.1%; Pred. No. 6.3e-34;
 Matches 89; Conservative 4; Mismatches 10; Indels 11; Gaps 1;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSES IPT 61

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          |||||:|||||:|||||:|||||:|||||
Db      27 FPTIPLSRLFDNAMLRRRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86
Qy      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL-----GTGPRFVNQHL 104
          ||||:|||||:|||||:|||||:|||||
Db      87 PSNRVKTQQKSNLELLRISLLLIQSWLEPVQLLRVSFANSLVYGASDSNVYRHL 140

```

RESULT 4

STHUV2

somatotropin 2 precursor, splice form 2 - human

N;Alternate names: growth hormone variant-2; placental somatotropin form 2

C;Species: Homo sapiens (man)

C;Date: 30-Sep-1989 #sequence_revision 10-Feb-1995 #text_change 09-Jul-2004

C;Accession: A28072

R;Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaver, S.A.

J. Biol. Chem. 263, 9001-9006, 1988

A;Title: Two distinct species of human growth hormone-variant mRNA in the human placenta predict the expression of novel growth hormone proteins.

A;Reference number: A92725; MUID:88243769; PMID:3379057

A;Accession: A28072

A;Molecule type: mRNA

A;Residues: 1-256 <COO>

A;Cross-references: UNIPROT:P01242

A;Note: an alternative splice junction for intron 4 is used

C;Genetics:

A;Gene: GDB:GH2

A;Cross-references: GDB:119983; OMIM:139240

A;Map position: 17q22-17q24

A;Introns: 4/1; 57/3; 97/3; 152/3

C;Superfamily: prolactin

C;Keywords: alternative splicing; hormone; placenta

F;1-26/Domain: signal sequence #status predicted <SIG>

F;27-256/Product: somatotropin 2 splice form 2 #status predicted <MAT>

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Query Match          53.5%;   Score 426.5;   DB 1;   Length 256;
Best Local Similarity 78.1%;   Pred. No. 7.6e-34;
Matches   89;   Conservative    4;   Mismatches   10;   Indels    11;   Gaps    1;

```

```

Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
          |||||:|||||:|||||:|||||:|||||
Db      27 FPTIPLSRLFDNAMLRRRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86
Qy      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL-----GTGPRFVNQHL 104
          ||||:|||||:|||||:|||||:|||||
Db      87 PSNRVKTQQKSNLELLRISLLLIQSWLEPVQLLRVSFANSLVYGASDSNVYRHL 140

```

RESULT 5

I67409

chorionic somatomammotropin-3 - rhesus macaque

C;Species: Macaca mulatta (rhesus macaque)

C;Date: 31-May-1996 #sequence_revision 31-May-1996 #text_change 09-Jul-2004

C;Accession: I67409

R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.

Endocrinology 133, 1744-1752, 1993


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Qy      115 LVCGERG 121
          |  | |
Db      140 LKKLEEG 146

```

RESULT 7

T67408

chorionic somatomammotropin-2 - rhesus macaque (fragment)

C;Species: *Macaca mulatta* (rhesus macaque)

C;Date: 31-May-1996 #sequence revision 31-May-1996 #text change 09-Jul-2004

C;Accession: I67408

R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.

Endocrinology 133, 1744-1752, 1993

A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.

A;Reference number: I53267; MUID:94008724; PMID:8404617

A;Accession: I67408

A;Status: preliminary; translated from GB/EMBL/DDBJ

A;Molecule type: mRNA

A;Residues: 1-212 <RES>

A;Cross-references: UNIPROT:Q07368; GB:L16553; NID:g293110; PIDN:AAA18840.1;
PID:g293111

C;Superfamily: prolactin

Query Match 49.7%; Score 396; DB 2; Length 212;

Best Local Similarity 82.2%; Pred. No. 5.5e-31;

Matches 74; Conservative 11; Mismatches 5; Indels 0; Gaps 0;

QY 3 PTIPLSRLFDNAMLRAHRLHQAFDTYQEFEAYIPKEQKYSFLQNPTLSFSSESIPTP 62
|::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||

Db 23 PSVPLSR LFDHAMIQAHRLHQLAFDTYQEFEEAYIPKEKKHSLMENPQASFCFADSIPTP 82

Qv 63 SNREETQOKSNLELLRISLLLIQSWLEPVQ 92

Db 83 SNLEETOQKSNLELLRISLLLIQSWLEPVQ 112

RESULT 8

I53267

chorionic somatomammotropin-1 - rhesus macaque

C;Species: *Macaca mulatta* (rhesus macaque)

C;Date: 31-May-1996 #sequence revision 31-May-1996 #text change 09-Jul-2004

C;Accession: I53267

R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.

Endocrinology 133, 1744-1752, 1993

A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.

A;Reference number: I53267; MUID:94008724; PMID:8404617

A;Accession: I53267

A;Status: preliminary; translated from GB/EMBL/DDBJ

A;Molecule type: mRNA

A;Residues: 1-217 <RES>

A;Cross-references: UNIPROT:Q07367; GB:L16552; NID:g293108; PIDN:AAA18839.1;
PID:g293109

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Query Match          49.7%; Score 396; DB 2; Length 217;  
Best Local Similarity 82.2%; Pred. No. 5.7e-31;  
Matches    74; Conservative   11; Mismatches     5; Indels      0; Gaps        0;  
  
Qy           3 PTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTP 62  
               |::| ||||| :|| ::| ||||| ||||| ||||| ||||| :|:| ::||| | |:| |||||  
Db           28 PSVPLSRLFDHAMIQAHLRHQLAFDITYQEFEEAYIPKEKKHSIMENPQASFCFADSIPTP 87  
  
Qy           63 SNREETQQKS NLELLRISLLLIQSWLEPVQ 92  
               || ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||  
Db           88 SNLEETQOKSNLELLRISLLLIQSWLEPVQ 117
```

A;Title: Primary structure of the NH-2-terminal extra piece of the precursor to human placental lactogen.

A;Reference number: A93833; MUID:80034970; PMID:291043
 A;Accession: A93833
 A;Molecule type: protein
 A;Residues: 1,3-26 <SHE>
 A;Experimental source: placenta
 R;Shine, J.; Seeburg, P.H.; Martial, J.A.; Baxter, J.D.; Goodman, H.M.
 Nature 270, 494-499, 1977
 A;Title: Construction and analysis of recombinant DNA for human chorionic somatomammotropin.
 A;Reference number: A93192; MUID:78071761; PMID:593368
 A;Accession: A93192
 A;Molecule type: DNA
 A;Residues: 50-217 <SHI>
 A;Experimental source: placenta
 R;Li, C.H.; Dixon, J.S.; Chung, D.
 Arch. Biochem. Biophys. 155, 95-110, 1973
 A;Title: Amino acid sequence of human chorionic somatomammotropin.
 A;Reference number: A90054; MUID:73201971; PMID:4712450
 A;Accession: A90054
 A;Molecule type: protein
 A;Residues: 27-217 <LIC>
 A;Experimental source: placenta
 R;Niall, H.D.
 in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin, Griffiths, K., ed., pp.13-20, Alpha Omega Alpha Press, Cardiff, Wales, 1972
 A;Title: The chemistry of the human lactogenic hormones.
 A;Reference number: A94427
 A;Accession: A94427
 A;Molecule type: protein
 A;Residues: 27-217 <NIA>
 A;Experimental source: placenta
 R;Nic A Bhaird, N.; Tipton, K.F.
 Biochem. Soc. Trans. 19, 20S, 1991
 A;Title: Catechol-O-methyltransferase from human placenta: purification and some properties.
 A;Reference number: A61283; MUID:91244006; PMID:2037148
 A;Accession: A61283
 A;Molecule type: protein
 A;Residues: 27-46 <NIC>
 A;Note: choriomammotropin apparently copurified with placental catechol-O-methyltransferase
 R;Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M.
 Nature New Biol. 233, 59-61, 1971
 A;Title: Amino-acid sequence of human placental lactogen.
 A;Reference number: A93401; MUID:72016313; PMID:5286363
 A;Contents: annotation
 R;Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M.
 Nature New Biol. 235, 64, 1972
 A;Reference number: A93405
 A;Contents: annotation
 R;Schneider, A.B.; Kowalski, K.; Russell, J.; Sherwood, L.M.
 J. Biol. Chem. 254, 3782-3787, 1979
 A;Title: Identification of the interchain disulfide bonds of dimeric human placental lactogen.
 A;Reference number: A92251; MUID:79173081; PMID:438159
 A;Contents: annotation; dimeric disulfide bonds
 R;Selby, M.J.; Barta, A.; Baxter, J.D.; Bell, G.I.; Eberhardt, N.L.

J. Biol. Chem. 259, 13131-13138, 1984
A;Title: Analysis of a major human chorionic somatomammotropin gene. Evidence for two functional promoter elements.
A;Reference number: I55229; MUID:85030426; PMID:6208192
A;Accession: I55229
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-217 <RES>
A;Cross-references: GB:K02401; NID:gl81120; PIDN:AAA52115.1; PID:gl81121
R;Seeburg, P.H.; Shine, J.; Martial, J.A.; Ullrich, A.; Goodman, H.
Trans. Assoc. Am. Physicians 90, 109-116, 1977
A;Title: Nucleotide sequence of a human gene coding for a polypeptide hormone.
A;Reference number: I59658; MUID:78160787; PMID:611657
A;Accession: I59658
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 160-217 <RE2>
A;Cross-references: GB:M25118; NID:gl81124; PIDN:AAA35721.1; PID:gl81125
C;Genetics:
A;Gene: GDB:CSH1
A;Cross-references: GDB:119084; OMIM:150200
A;Map position: 17q22-17q24
A;Introns: 4/1; 57/3; 97/3; 152/3
C;Superfamily: prolactin
C;Keywords: hormone; placenta
F;1-26/Domain: signal sequence #status experimental <SIG>
F;27-217/Product: choriomammotropin A #status experimental <MAT>
F;79-191/Disulfide bonds: #status experimental
F;208-215/Disulfide bonds: (in monomeric form) #status experimental
F;208/Disulfide bonds: interchain (to 215 in dimeric form) #status experimental
F;215/Disulfide bonds: interchain (to 208 in dimeric form) #status experimental

Query Match 47.8%; Score 381; DB 1; Length 217;
Best Local Similarity 82.0%; Pred. No. 1.6e-29;
Matches 73; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

```

Qy      4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPTPS 63
          |:|||||:||||:|  |||  |||||  |||||:||||| : |||  ||:|||||
Db      29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEEYIPKQKYSFLHDSQTSFCFSDSIPTPS 88

Qy      64 NREETQQKSNLELLRISLLLIQSWLEPVQ 92
          | |||||:|||||:
Db      89 NMEETQQKSNLELLRISLLLIQSWLEPVR 117

```

RESULT 10
E32435

choriomammotropin B precursor - human
N;Alternate names: chorionic somatomammotropin 2
C;Species: Homo sapiens (man)
C;Date: 29-Dec-1989 #sequence_revision 29-Dec-1989 #text_change 09-Jul-2004
C;Accession: E32435
R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.;
Seeburg, P.H.
Genomics 4, 479-497, 1989
A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.

RESULT 12

B49159

somatotropin - golden hamster

N;Alternate names: growth hormone

C;Species: *Mesocricetus auratus* (golden hamster)

C;Date: 19-Dec-1993 #sequence_revision 18-Nov-1994 #text_change 09-Jul-2004

C;Accession: B49159

R;Southard, J.N.; Sanchez-Jimenez, F.; Campbell, G.T.; Talamantes, F.

Endocrinology 129, 2965-2971, 1991

A;Title: Sequence and expression of hamster prolactin and growth hormone messenger RNAs.

A;Reference number: A49159; MUID:92063850; PMID:1954881

A;Accession: B49159

A;Status: preliminary

A;Molecule type: mRNA

A;Residues: 1-216 <SOU>

A;Cross-references: UNIPROT:P37886; GB:S66299; NID:g239355; PIDN:AAB20368.1; PID:g239356

A;Note: sequence extracted from NCBI backbone (NCBIN:66299, NCBIP:66300)

C;Superfamily: prolactin

Query Match 39.0%; Score 310.5; DB 2; Length 216;

Best Local Similarity 67.0%; Pred. No. 1.1e-22;

Matches 61; Conservative 13; Mismatches 16; Indels 1; Gaps 1;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61

Db 27 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYSIQNAQTAFCFSETIPA 85

Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

Db 86 PTGKEEAQQRSDMELLRFSLLLIQSWLGPVQ 116

RESULT 13

PN0140

somatotropin - sei whale

N;Alternate names: growth hormone

C;Species: *Balaenoptera borealis* (sei whale)

C;Date: 07-May-1993 #sequence_revision 07-May-1993 #text_change 09-Jul-2004

C;Accession: PN0140

R;Yudaev, N.A.; Pankov, Y.A.; Bulatov, A.A.; Osipova, T.A.

Biokhimiia 47, 1059-1069, 1982

A;Title: Amino acid sequence of seiwhale somatotropin.

A;Reference number: PN0140; MUID:83000569; PMID:7115813

A;Accession: PN0140

A;Molecule type: protein

A;Residues: 1-190 <YUD>

A;Cross-references: UNIPROT:P33092

A;Note: article in Russian with English abstract

C;Superfamily: prolactin

C;Keywords: growth factor; hormone

F;52-163,180-188/Disulfide bonds: #status predicted

Query Match 38.6%; Score 307.5; DB 2; Length 190;

Best Local Similarity 67.0%; Pred. No. 1.8e-22;
Matches 61; Conservative 14; Mismatches 15; Indels 1; Gaps 1;

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Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
        || :||| || ||:||| ||:|| |||:||| ||||: |:| |||| |:| ||| |||
Db      1 FPAMPLSSLFANAVLRAQHLHELAADTYKEFERAYIPEGQRY-FLQNAQSTGCFSEVIPT 59

Qy      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
        |:|::| ||:|::||| ||||| |||
Db      60 PANKDEAQQRSDEVLLRFSLLLIQSWLGPVQ 90

```

RESULT 14

STHO

somatotropin - horse

N;Alternate names: growth hormone

C;Species: Equus caballus (domestic horse)

C;Date: 13-Jul-1981 #sequence_revision 13-Jul-1981 #text_change 23-Aug-1996

C;Accession: A91772; A91395; A91383; A90240; A01514

R;Zakin, M.M.; Poskus, E.; Langton, A.A.; Ferrara, P.; Santome, J.A.; Dellacha, J.M.; Paladini, A.C.

Int. J. Pept. Protein Res. 8, 435-444, 1976

A;Title: Primary structure of equine growth hormone.

A;Reference number: A91772; MUID:77005410; PMID:965151

A;Accession: A91772

A;Molecule type: protein

A;Residues: 1-190 <ZAK>

R;Zakin, M.M.; Poskus, E.; Dellacha, J.M.; Paladini, A.C.; Santome, J.A.

FEBS Lett. 34, 353-355, 1973

A;Title: The amino acid sequence of equine growth hormone.

A;Reference number: A91395; MUID:74020362; PMID:4747849

A;Accession: A91395

A;Molecule type: protein

A;Residues: 1-190 <ZA2>

R;Zakin, M.M.; Poskus, E.; Dellacha, J.M.; Paladini, A.C.; Santome, J.A.

FEBS Lett. 25, 77-82, 1972

A;Title: Amino acid sequences around the cystine residues in equine growth hormone.

A;Reference number: A91383

A;Accession: A91383

A;Molecule type: protein

A;Residues: 42-69;157-190 <ZA3>

R;Oliver, L.; Hartree, A.S.

Biochem. J. 109, 19-24, 1968

A;Title: Amino acid sequences around the cystine residues in horse growth hormone.

A;Reference number: A90240; MUID:68368390; PMID:4876100

A;Accession: A90240

A;Molecule type: protein

A;Residues: 176-190 <OLI>

C;Superfamily: prolactin

C;Keywords: hormone; pituitary

F;52-163,180-188/Disulfide bonds: #status experimental

Query Match 38.5%; Score 306.5; DB 1; Length 190;

Best Local Similarity 65.2%; Pred. No. 2.3e-22;

Matches 60; Conservative 14; Mismatches 17; Indels 1; Gaps 1;

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Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
      || :||| || ||:||| ||||| |||:||| ||||: |:|| :|| | : |||:|
Db      1 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYIS-IQNAQA AFCFSETIPA 59

Qy      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL 93
      |: :| ||:|:|||| ||||| ||||
Db      60 PTGKDEAQQRSDMELLRFSLLLIQSWLGPVQL 91

```

RESULT 15

STMS

somatotropin precursor - mouse

N;Alternate names: growth hormone

C;Species: Mus musculus (house mouse)

C;Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 09-Jul-2004

C;Accession: B23911

R;Linzer, D.I.H.; Talamantes, F.

J. Biol. Chem. 260, 9574-9579, 1985

A;Title: Nucleotide sequence of mouse prolactin and growth hormone mRNAs and expression of these mRNAs during pregnancy.

A;Reference number: A92548; MUID:85261358; PMID:2991252

A;Accession: B23911

A;Molecule type: mRNA

A;Residues: 1-216 <LIN>

A;Cross-references: UNIPROT:P06880; GB:X02891; GB:K03232; NID:g51067;

PIDN:CAA26650.1; PID:g51068

C;Superfamily: prolactin

C;Keywords: anterior pituitary; growth factor; hormone

F;1-26/Domain: signal sequence #status predicted <SIG>

F;27-216/Product: somatotropin #status predicted <STN>

F;78-189,206-214/Disulfide bonds: #status predicted

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Query Match          38.2%; Score 304.5; DB 1; Length 216;
Best Local Similarity 64.8%; Pred. No. 4.2e-22;
Matches 59; Conservative 14; Mismatches 17; Indels 1; Gaps 1;

```

```

Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
      || :||| || ||:||| ||||| |||:||| ||||: |:|| :|| | : |||:|
Db      27 FPAMPLSSLFSAVLRAQHLHQLAADTYKEFERAYIPEGQRYIS-IQNAQA AFCFSETIPA 85

Qy      62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
      |: :| ||:|:|||| ||||| ||||
Db      86 PTGKEEAQQRTDMELLRFSLLLIQSWLGPVQ 116

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Search completed: March 9, 2005, 04:20:11

Job time : 28.7823 secs

OM protein - protein search, using sw model

Run on: March 9, 2005, 04:18:26 ; Search time 317.435 Seconds
(without alignments)
155.486 Million cell updates/sec

Title: US-10-054-873-7
Perfect score: 797
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....IVEQCCTSICSLYQLENYCN 150

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1391452 seqs, 329044822 residues

Total number of hits satisfying chosen parameters: 1391452

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published Applications_AA:*

- 1: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
- 2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
- 3: /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
- 4: /cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
- 5: /cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
- 6: /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
- 7: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
- 8: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
- 9: /cgn2_6/ptodata/1/pubpaa/US09A_PUBCOMB.pep:*
- 10: /cgn2_6/ptodata/1/pubpaa/US09B_PUBCOMB.pep:*
- 11: /cgn2_6/ptodata/1/pubpaa/US09C_PUBCOMB.pep:*
- 12: /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
- 13: /cgn2_6/ptodata/1/pubpaa/US10A_PUBCOMB.pep:*
- 14: /cgn2_6/ptodata/1/pubpaa/US10B_PUBCOMB.pep:*
- 15: /cgn2_6/ptodata/1/pubpaa/US10C_PUBCOMB.pep:*
- 16: /cgn2_6/ptodata/1/pubpaa/US10D_PUBCOMB.pep:*
- 17: /cgn2_6/ptodata/1/pubpaa/US10_NEW_PUB.pep:*
- 18: /cgn2_6/ptodata/1/pubpaa/US11_NEW_PUB.pep:*
- 19: /cgn2_6/ptodata/1/pubpaa/US60_NEW_PUB.pep:*
- 20: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	797	100.0	150	13	US-10-054-873-7	Sequence 7, Appli
2	555.5	69.7	107	13	US-10-054-873-6	Sequence 6, Appli
3	470	59.0	92	13	US-10-054-873-2	Sequence 2, Appli
4	470	59.0	134	10	US-09-819-094-24	Sequence 24, Appl
5	470	59.0	134	15	US-10-714-067-24	Sequence 24, Appl
6	466	58.5	188	15	US-10-621-693-18	Sequence 18, Appl
7	466	58.5	192	10	US-09-819-094-23	Sequence 23, Appl
8	466	58.5	192	15	US-10-621-693-8	Sequence 8, Appli
9	466	58.5	192	15	US-10-621-693-78	Sequence 78, Appl
10	466	58.5	192	15	US-10-621-693-86	Sequence 86, Appl
11	466	58.5	192	15	US-10-714-067-23	Sequence 23, Appl
12	466	58.5	193	15	US-10-621-693-42	Sequence 42, Appl
13	466	58.5	206	15	US-10-621-693-72	Sequence 72, Appl
14	466	58.5	391	15	US-10-621-693-51	Sequence 51, Appl
15	466	58.5	574	15	US-10-621-693-32	Sequence 32, Appl
16	466	58.5	576	15	US-10-621-693-39	Sequence 39, Appl
17	466	58.5	589	15	US-10-621-693-53	Sequence 53, Appl
18	466	58.5	786	15	US-10-621-693-55	Sequence 55, Appl
19	466	58.5	810	15	US-10-621-693-76	Sequence 76, Appl
20	464	58.2	191	16	US-10-658-834A-875	Sequence 875, App
21	463	58.1	191	16	US-10-658-834A-866	Sequence 866, App
22	463	58.1	191	16	US-10-658-834A-876	Sequence 876, App
23	463	58.1	191	16	US-10-658-834A-887	Sequence 887, App
24	463	58.1	213	17	US-10-741-600-954	Sequence 954, App
25	462	58.0	191	16	US-10-658-834A-867	Sequence 867, App
26	462	58.0	191	16	US-10-658-834A-881	Sequence 881, App
27	462	58.0	191	16	US-10-658-834A-888	Sequence 888, App
28	461	57.8	191	10	US-09-984-010-23	Sequence 23, Appl
29	461	57.8	191	14	US-10-153-207-1	Sequence 1, Appli
30	461	57.8	191	14	US-10-400-377-1	Sequence 1, Appli
31	461	57.8	191	14	US-10-400-708-1	Sequence 1, Appli
32	461	57.8	191	14	US-10-298-148-1	Sequence 1, Appli
33	461	57.8	191	15	US-10-646-798-2	Sequence 2, Appli
34	461	57.8	191	15	US-10-621-693-2	Sequence 2, Appli
35	461	57.8	191	15	US-10-621-693-21	Sequence 21, Appl
36	461	57.8	191	15	US-10-621-693-80	Sequence 80, Appl
37	461	57.8	191	15	US-10-621-693-82	Sequence 82, Appl
38	461	57.8	191	15	US-10-621-693-84	Sequence 84, Appl
39	461	57.8	191	16	US-10-718-340-1	Sequence 1, Appli
40	461	57.8	191	16	US-10-658-834A-868	Sequence 868, App
41	461	57.8	191	16	US-10-658-834A-869	Sequence 869, App
42	461	57.8	191	16	US-10-658-834A-870	Sequence 870, App
43	461	57.8	191	16	US-10-658-834A-871	Sequence 871, App
44	461	57.8	191	16	US-10-658-834A-883	Sequence 883, App
45	461	57.8	191	16	US-10-658-834A-884	Sequence 884, App

ALIGNMENTS

RESULT 1

US-10-054-873-7

; Sequence 7, Application US/10054873

; Publication No. US20020164712A1

```

; GENERAL INFORMATION:
; APPLICANT: Gan, Zhong Ru
; TITLE OF INVENTION: Chimeric Protein Containing an
;                      Intramolecular Chaperone-Like Sequence
; NUMBER OF SEQUENCES: 7
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Townsend and Townsend and Crew LLP
; STREET: Two Embarcadero Center, Eighth Floor
; CITY: San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94111-3834
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/10/054,873
; FILING DATE: 22-Jan-2002
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: WO PCT/CN98/00052
; FILING DATE: 31-MAR-1998
; APPLICATION NUMBER: US 09/423,100
; FILING DATE: 11-DEC-2000
; ATTORNEY/AGENT INFORMATION:
; NAME: Mycroft, Frank J
; REGISTRATION NUMBER: 46,946
; REFERENCE/DOCKET NUMBER: 020167-000130US
; INFORMATION FOR SEQ ID NO: 7:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 150 amino acids
; TYPE: amino acid
; STRANDEDNESS: <Unknown>
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; SEQUENCE DESCRIPTION: SEQ ID NO: 7:
US-10-054-873-7

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Query Match          100.0%;  Score 797;  DB 13;  Length 150;
Best Local Similarity 100.0%;  Pred. No. 1.8e-78;
Matches 150;  Conservative 0;  Mismatches 0;  Indels 0;  Gaps 0;

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Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
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Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
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Qy     61 TPSNREETQQKSNLELLRLISLLLIQSWLEPVQLGTGPRFVNQHLCGSHLVEALYLVCGER 120
|
Db     61 TPSNREETQQKSNLELLRLISLLLIQSWLEPVQLGTGPRFVNQHLCGSHLVEALYLVCGER 120
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Qy    121 GFFYTPKTRGIVEQCCTSICSLYQLENYCN 150
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Db    121 GFFYTPKTRGIVEQCCTSICSLYQLENYCN 150

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RESULT 2

US-10-054-873-6

; Sequence 6, Application US/10054873

; Publication No. US20020164712A1

; GENERAL INFORMATION:

; APPLICANT: Gan, Zhong Ru

; TITLE OF INVENTION: Chimeric Protein Containing an
Intramolecular Chaperone-Like Sequence

; NUMBER OF SEQUENCES: 7

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Townsend and Townsend and Crew LLP

; STREET: Two Embarcadero Center, Eighth Floor

; CITY: San Francisco

; STATE: California

; COUNTRY: USA

; ZIP: 94111-3834

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: PatentIn Release #1.0, Version #1.30

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/10/054,873

; FILING DATE: 22-Jan-2002

; CLASSIFICATION: <Unknown>

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: WO PCT/CN98/00052

; FILING DATE: 31-MAR-1998

; APPLICATION NUMBER: US 09/423,100

; FILING DATE: 11-DEC-2000

; ATTORNEY/AGENT INFORMATION:

; NAME: Mycroft, Frank J

; REGISTRATION NUMBER: 46,946

; REFERENCE/DOCKET NUMBER: 020167-000130US

; INFORMATION FOR SEQ ID NO: 6:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 107 amino acids

; TYPE: amino acid

; STRANDEDNESS: <Unknown>

; TOPOLOGY: linear

; MOLECULE TYPE: protein

; SEQUENCE DESCRIPTION: SEQ ID NO: 6:

US-10-054-873-6

Query Match 69.7%; Score 555.5; DB 13; Length 107;

Best Local Similarity 71.3%; Pred. No. 2.2e-52;

Matches 107; Conservative 0; Mismatches 0; Indels 43; Gaps 1;

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Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
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Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP----- 49

Qy     61 TPSNREETQQKSNLELLRLISLLLIQSWLEPVQLGTGPRFVNQHLCGSHLVEALYLVCGER 120
          |||
Db      50 -----LGTGPRFVNQHLCGSHLVEALYLVCGER 77

Qy     121 GFFYTPKTRGIVEQCCTSICSLYQLENYCN 150

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|||||
Db 78 GFFYTPKTRGIVEQCCTSICSLYQLENYCN 107

RESULT 3

US-10-054-873-2

; Sequence 2, Application US/10054873

; Publication No. US20020164712A1

; GENERAL INFORMATION:

; APPLICANT: Gan, Zhong Ru

; TITLE OF INVENTION: Chimeric Protein Containing an

; Intramolecular Chaperone-Like Sequence

; NUMBER OF SEQUENCES: 7

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Townsend and Townsend and Crew LLP

; STREET: Two Embarcadero Center, Eighth Floor

; CITY: San Francisco

; STATE: California

; COUNTRY: USA

; ZIP: 94111-3834

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: PatentIn Release #1.0, Version #1.30

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/10/054,873

; FILING DATE: 22-Jan-2002

; CLASSIFICATION: <Unknown>

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: WO PCT/CN98/00052

; FILING DATE: 31-MAR-1998

; APPLICATION NUMBER: US 09/423,100

; FILING DATE: 11-DEC-2000

; ATTORNEY/AGENT INFORMATION:

; NAME: Mycroft, Frank J

; REGISTRATION NUMBER: 46,946

; REFERENCE/DOCKET NUMBER: 020167-000130US

; INFORMATION FOR SEQ ID NO: 2:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 92 amino acids

; TYPE: amino acid

; STRANDEDNESS: <Unknown>

; TOPOLOGY: linear

; MOLECULE TYPE: protein

; SEQUENCE DESCRIPTION: SEQ ID NO: 2:

US-10-054-873-2

Query Match 59.0%; Score 470; DB 13; Length 92;

Best Local Similarity 100.0%; Pred. No. 3.6e-43;

Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSR LFDNAMLRAHRLHQLAFD TYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
|

Db 1 MFPTIPLSR LFDNAMLRAHRLHQLAFD TYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60

Qy 61 TPSNREETQQKSNLELLRLISLLLIQSWLEPVQ 92

|||||
Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

RESULT 4

US-09-819-094-24

; Sequence 24, Application US/09819094
; Publication No. US20030186382A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, Richard I.
; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: No. US20030186382A1el Antiangiogenic Peptide Agents and Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/09/819,094
; CURRENT FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 24
; LENGTH: 134
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-819-094-24

Query Match 59.0%; Score 470; DB 10; Length 134;
Best Local Similarity 100.0%; Pred. No. 5.8e-43;
Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRFLDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
|
Db 1 MFPTIPLSRFLDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
|
Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQ 92

RESULT 5

US-10-714-067-24

; Sequence 24, Application US/10714067
; Publication No. US20040077054A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, Richard I.
; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: Novel Antiangiogenic Peptide Agents and Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US

; CURRENT APPLICATION NUMBER: US/10/714,067
 ; CURRENT FILING DATE: 2003-11-14
 ; PRIOR APPLICATION NUMBER: US/09/819,094
 ; PRIOR FILING DATE: 2001-03-27
 ; PRIOR APPLICATION NUMBER: 09/076,675
 ; PRIOR FILING DATE: 1998-05-12
 ; PRIOR APPLICATION NUMBER: 60/046,394
 ; PRIOR FILING DATE: 1997-05-12
 ; NUMBER OF SEQ ID NOS: 34
 ; SEQ ID NO 24
 ; LENGTH: 134
 ; TYPE: PRT
 ; ORGANISM: Homo sapiens
 US-10-714-067-24

Query Match 59.0%; Score 470; DB 15; Length 134;
 Best Local Similarity 100.0%; Pred. No. 5.8e-43;
 Matches 92; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MEFTIPLSRLEFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
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 Db 1 MEFTIPLSRLEFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
 Qy 61 TPSNREETQOKSNLELLLRISLLLIQSWLEPVQ 92
 |||
 Db 61 TPSNREETQOKSNLELLLRISLLLIQSWLEPVQ 92

RESULT 6

US-10-621-693-18

; Sequence 18, Application US/10621693
 ; Publication No. US20040059093A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Gentide Biopharmaceuticals, Inc.
 ; APPLICANT: Bussell, Stuart
 ; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN SEQUENCES AS
 ; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
 ; FILE REFERENCE: GNT-00101.P.1-US
 ; CURRENT APPLICATION NUMBER: US/10/621,693
 ; CURRENT FILING DATE: 2003-07-16
 ; PRIOR APPLICATION NUMBER: US 60/396,466
 ; PRIOR FILING DATE: 2002-07-16
 ; NUMBER OF SEQ ID NOS: 86
 ; SOFTWARE: PatentIn version 3.0
 ; SEQ ID NO 18
 ; LENGTH: 188
 ; TYPE: PRT
 ; ORGANISM: Artificial
 ; FEATURE:
 ; OTHER INFORMATION: synthetic sequence
 US-10-621-693-18

Query Match 58.5%; Score 466; DB 15; Length 188;
 Best Local Similarity 70.5%; Pred. No. 2.5e-42;
 Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```

Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
        |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
        |||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119

Qy      111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
        | : : | | | :|:| | :|
Db      120 EGIQTLMGRLDG---SPRTGQIFKQ 142

```

RESULT 7

US-09-819-094-23

```

; Sequence 23, Application US/09819094
; Publication No. US20030186382A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, Richard I.
; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: No. US20030186382A1el Antiangiogenic Peptide Agents and
Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/09/819,094
; CURRENT FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 23
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-819-094-23

```

```

Query Match      58.5%; Score 466; DB 10; Length 192;
Best Local Similarity 70.5%; Pred. No. 2.5e-42;
Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```

```

Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
        |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
        |||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119

Qy      111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
        | : : | | | :|:| | :|
Db      120 EGIQTLMGRLDG---SPRTGQIFKQ 142

```

RESULT 8

US-10-621-693-8

```
; Sequence 8, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 8
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
; FEATURE:
; NAME/KEY: mat_peptide
; LOCATION: (1)..()
```

US-10-621-693-8

```
Query Match          58.5%; Score 466; DB 15; Length 192;
Best Local Similarity 70.5%; Pred. No. 2.5e-42;
Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;
```

```
Qy      1 MFPTIPLSRLEFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
          |||
Db      1 MFPTIPLSRLEFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60

Qy      61 TPSNREETQQKSNLELLRLISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
          |||
Db      61 TPSNREETQQKSNLELLRLISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119

Qy      111 EALYLVCG--ERGGFFYTPKTRGIVEQ 134
          | : : | | | :|:| | :|
Db      120 EGIQTLMGRLLEDG---SPRTGQIFKQ 142
```

RESULT 9

US-10-621-693-78

```
; Sequence 78, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
```

```
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 78
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
US-10-621-693-78
```

```
Query Match          58.5%; Score 466; DB 15; Length 192;
Best Local Similarity 70.5%; Pred. No. 2.5e-42;
Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;
```

```
Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60

Qy      61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
          ||||||||||||||||||||||||||||| | | : | : |
Db      61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQF-LRSVFANSILVYGASDSNVYDLLKDLE 119

Qy      111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
          | : : | | | :|:| | :|
Db      120 EGIQTLMGRLLEDG---SPRTGQIFKQ 142
```

RESULT 10

US-10-621-693-86

```
; Sequence 86, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 86
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
; FEATURE:
; NAME/KEY: MISC_FEATURE
; LOCATION: (2)..(192)
```

; OTHER INFORMATION: sequence is repeated N+2 times, where N is a positive whole numbe

; FEATURE:

; NAME/KEY: mat_peptide

; LOCATION: (1)..()

US-10-621-693-86

Query Match 58.5%; Score 466; DB 15; Length 192;

Best Local Similarity 70.5%; Pred. No. 2.5e-42;

Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

|||||

Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110

||||| : | :

Db 61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSILVYGASDSNVYDLLKDLE 119

Qy 111 EALYLVCG--ERGFFYTPKTRGIVEQ 134

| : : | | : | : | :

Db 120 EGIQTLMGRLEDG---SPRTGQIFKQ 142

RESULT 11

US-10-714-067-23

; Sequence.23, Application US/10714067

; Publication No. US20040077054A1

; GENERAL INFORMATION:

; APPLICANT: Weiner, Richard I.

; APPLICANT: Martial, Joseph A.

; APPLICANT: Struman, Ingrid

; APPLICANT: Taylor, Robert

; APPLICANT: Bentzien, Frauke

; TITLE OF INVENTION: Novel Antiangiogenic Peptide Agents and Their

; TITLE OF INVENTION: Therapeutic and Diagnostic Use

; FILE REFERENCE: UCSF-018/02US

; CURRENT APPLICATION NUMBER: US/10/714,067

; CURRENT FILING DATE: 2003-11-14

; PRIOR APPLICATION NUMBER: US/09/819,094

; PRIOR FILING DATE: 2001-03-27

; PRIOR APPLICATION NUMBER: 09/076,675

; PRIOR FILING DATE: 1998-05-12

; PRIOR APPLICATION NUMBER: 60/046,394

; PRIOR FILING DATE: 1997-05-12

; NUMBER OF SEQ ID NOS: 34

; SEQ ID NO 23

; LENGTH: 192

; TYPE: PRT

; ORGANISM: Homo sapiens

US-10-714-067-23

Query Match 58.5%; Score 466; DB 15; Length 192;

Best Local Similarity 70.5%; Pred. No. 2.5e-42;

Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60


```

          |||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
          |||||||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119

Qy      111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
          | : : | | :|:| | :|
Db      120 EGIQTLMGRLLEDG---SPRTGQIFKQ 142

```

RESULT 12

US-10-621-693-42

```

; Sequence 42, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 42
; LENGTH: 193
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
US-10-621-693-42

```

```

Query Match          58.5%; Score 466; DB 15; Length 193;
Best Local Similarity 70.5%; Pred. No. 2.6e-42;
Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```

```

Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
          |||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIP 60

Qy      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
          |||||||
Db      61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119

Qy      111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
          | : : | | :|:| | :|
Db      120 EGIQTLMGRLLEDG---SPRTGQIFKQ 142

```

RESULT 13

US-10-621-693-72

; Sequence 72, Application US/10621693

```

; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 72
; LENGTH: 206
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
US-10-621-693-72

```

```

Query Match          58.5%; Score 466; DB 15; Length 206;
Best Local Similarity 70.5%; Pred. No. 2.8e-42;
Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```

```

Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
        ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60

Qy      61 TPSNREETQQKSNLELLRLISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
        |||||||||||||||||||||||||||||||||||||  | | : | :      |
Db      61 TPSNREETQQKSNLELLRLISLLLIQSWLEPVQF-LRSVFANSILVYGASDSNVYDLLKDLE 119

Qy      111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
        | : : | | | :|:| | :|
Db      120 EGIQTLMGRLLEDG---SPRTGQIFKQ 142

```

RESULT 14

```

US-10-621-693-51
; Sequence 51, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 51

```

```
; LENGTH: 391
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
; FEATURE:
; NAME/KEY: mat_peptide
; LOCATION: (1)..()
US-10-621-693-51
```

```
Query Match          58.5%; Score 466; DB 15; Length 391;
Best Local Similarity 70.5%; Pred. No. 6.4e-42;
Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;
```

```
Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60
          |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSSESIP 60

Qy     61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQLGTGPRFVNQHLCS-----HLV 110
          |||
Db     61 TPSNREETQQKSNLELLLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119

Qy    111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
          | : : | | :| | :|
Db    120 EGIQTLMGRLDG---SPRTGQIFKQ 142
```

RESULT 15

US-10-621-693-32

```
; Sequence 32, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 32
; LENGTH: 574
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
; FEATURE:
; NAME/KEY: MISC_FEATURE
; LOCATION: (379)..(569)
; OTHER INFORMATION: sequence is repeated N-1 times, where N is a positive
whole numbe
; FEATURE:
; NAME/KEY: mat_peptide
```

; LOCATION: (1)..()
US-10-621-693-32

Query Match 58.5%; Score 466; DB 15; Length 574;
Best Local Similarity 70.5%; Pred. No. 1.1e-41;
Matches 103; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

```
Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60
          |||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIP 60

Qy     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLV 110
          |||
Db     61 TPSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLE 119

Qy    111 EALYLVCG--ERGFFYTPKTRGIVEQ 134
          | : : | | | :|:| | :|
Db    120 EGIQTLMGRLDGG---SPRTGQIFKQ 142
```

Search completed: March 9, 2005, 05:12:22
Job time : 318.435 secs

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: March 9, 2005, 01:51:08 ; Search time 131.734 Seconds
 (without alignments)
 583.082 Million cell updates/sec

Title: US-10-054-873-7
 Perfect score: 797
 Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....IVEQCCTSICSLSYQLENYCN 150

Scoring table: BLOSUM62
 Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0
 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
 Maximum Match 100%
 Listing first 45 summaries

Database : UniProt_03:*
 1: uniprot_sprot:*
 2: uniprot_trembl:*

Pred. No. is the number of results predicted by chance to have a
 score greater than or equal to the score of the result being printed,
 and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	% Query		DB	ID	Description
	Score	Match Length			
1	461	57.8	217	1	SOMA_HUMAN
2	461	57.8	217	1	SOMA_PANTR
3	460	57.7	217	1	SOMA_MACMU
4	460	57.7	217	2	Q6IYF0
5	457	57.3	217	2	Q6IYF1
6	437	54.8	217	1	SOMA_SAIBB
7	436	54.7	217	2	Q8WNE0
8	434.5	54.5	217	1	SOM2_PANTR
9	432	54.2	217	1	SOMA_CALJA
10	427.5	53.6	217	2	Q6FH54
11	427.5	53.6	245	2	O14644
12	426.5	53.5	217	1	SOM2_HUMAN
13	421.5	52.9	217	2	Q6FH32
14	407.5	51.1	217	2	Q07369
15	399	50.1	184	2	Q866T9

16	399	50.1	217	1	SOM2_MACMU	Q07370	macaca mula
17	397	49.8	217	2	Q866U1	Q866u1	pan troglod
18	396	49.7	212	2	Q07368	Q07368	macaca mula
19	396	49.7	217	2	Q07367	Q07367	macaca mula
20	385	48.3	217	2	Q866T8	Q866t8	pan troglod
21	381	47.8	217	1	CSH_HUMAN	P01243	homo sapien
22	381	47.8	217	2	Q6PF11	Q6pf11	homo sapien
23	370	46.4	217	2	Q866U0	Q866u0	pan troglod
24	348	43.7	217	2	Q8WND9	Q8wnd9	ateles geof
25	341	42.8	202	2	O14643	O14643	homo sapien
26	322.5	40.5	217	2	Q8MI74	Q8mi74	callithrix
27	310.5	39.0	216	1	SOMA_MESAU	P37886	mesocricetu
28	307.5	38.6	190	1	SOMA_BALBO	P33092	balaenopter
29	307	38.5	184	2	Q69B30	Q69b30	ateles geof
30	306.5	38.5	216	1	SOMA_HORSE	P01245	equus cabal
31	306.5	38.5	216	2	O70615	O70615	spalax leuc
32	306.5	38.5	217	1	SOMA_GALSE	Q9gka1	galago sene
33	306.5	38.5	217	1	SOMA_NYCPY	Q9gmb2	nycticebus
34	304.5	38.2	216	1	SOMA_MOUSE	P06880	mus musculu
35	302.5	38.0	216	1	SOMA_RABIT	P46407	oryctolagus
36	302.5	38.0	216	1	SOMA_RAT	P01244	rattus norv
37	301.5	37.8	190	1	SOMA_LOXAF	P20392	loxdonta a
38	301.5	37.8	216	1	SOMA_BALPH	Q659q8	balaenopter
39	301.5	37.8	216	1	SOMA_CANFA	P33711	canis famil
40	301.5	37.8	216	1	SOMA_FELCA	P46404	felis silve
41	301.5	37.8	216	1	SOMA_PIG	P01248	sus scrofa
42	301.5	37.8	216	2	Q8HYE5	Q8hye5	ailuropoda
43	301.5	37.8	216	2	Q8MI73	Q8mi73	delphinus d
44	301.5	37.8	216	2	Q7YQB8	Q7yqb8	hippopotamu
45	299.5	37.6	216	1	SOMA_MUSVI	P19795	mustela vis

ALIGNMENTS

RESULT 1

SOMA_HUMAN

ID SOMA_HUMAN STANDARD; PRT; 217 AA.
AC P01241; Q14405; Q16631; Q9HBZ1; Q9UMJ7; Q9UNL5;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-MAR-1992 (Rel. 21, Last sequence update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth hormone) (Growth hormone 1).
GN Name=GH1;
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A. (ISOFORM 1).
RX MEDLINE=80034477; PubMed=386281;
RA Roskam W., Rougeon F.;
RT "Molecular cloning and nucleotide sequence of the human growth hormone structural gene."
RL Nucleic Acids Res. 7:305-320(1979).
RN [2]

RP SEQUENCE FROM N.A. (ISOFORM 1).
 RX MEDLINE=79203293; PubMed=377496;
 RA Martial J.A., Hallewell R.A., Baxter J.D., Goodman H.M.;
 RT "Human growth hormone: complementary DNA cloning and expression in
 RT bacteria.";
 RL Science 205:602-607(1979).
 RN [3]
 RP SEQUENCE FROM N.A. (ISOFORM 1), AND POSSIBLE ALTERNATIVE SPLICING.
 RX MEDLINE=82014939; PubMed=6269091;
 RA Denoto F.M., Moore D.D., Goodman H.M.;
 RT "Human growth hormone DNA sequence and mRNA structure: possible
 RT alternative splicing.";
 RL Nucleic Acids Res. 9:3719-3730(1981).
 RN [4]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=83182010; PubMed=7169009;
 RA Seeburg P.H.;
 RT "The human growth hormone gene family: nucleotide sequences show
 RT recent divergence and predict a new polypeptide hormone.";
 RL DNA 1:239-249(1982).
 RN [5]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=89307277; PubMed=2744760;
 RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
 RA Seeburg P.H.;
 RT "The human growth hormone locus: nucleotide sequence, biology, and
 RT evolution.";
 RL Genomics 4:479-497(1989).
 RN [6]
 RP SEQUENCE FROM N.A. (ISOFORM 3).
 RC TISSUE=Pituitary;
 RA Gu J., Huang Q.-H., Li N., Xu S.-H., Han Z.-G., Fu G., Chen Z.;
 RT "A novel gene expressed in human pituitary.";
 RL Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.
 RN [7]
 RP SEQUENCE FROM N.A. (ISOFORM 4).
 RC TISSUE=Pituitary;
 RX MEDLINE=20402571; PubMed=10931946; DOI=10.1073/pnas.160270997;
 RA Hu R.-M., Han Z.-G., Song H.-D., Peng Y.-D., Huang Q.-H., Ren S.-X.,
 RA Gu Y.-J., Huang C.-H., Li Y.-B., Jiang C.-L., Fu G., Zhang Q.-H.,
 RA Gu B.-W., Dai M., Mao Y.-F., Gao G.-F., Rong R., Ye M., Zhou J.,
 RA Xu S.-H., Gu J., Shi J.-X., Jin W.-R., Zhang C.-K., Wu T.-M.,
 RA Huang G.-Y., Chen Z., Chen M.-D., Chen J.-L.;
 RT "Gene expression profiling in the human hypothalamus-pituitary-adrenal
 RT axis and full-length cDNA cloning.";
 RL Proc. Natl. Acad. Sci. U.S.A. 97:9543-9548(2000).
 RN [8]
 RP SEQUENCE OF 1-26 FROM N.A.
 RX MEDLINE=86137393; PubMed=3912261; DOI=10.1016/0378-1119(85)90319-1;
 RA Gray G.L., Baldridge J.S., McKeown K.S., Heyneker H.L., Chang C.N.;
 RT "Periplasmic production of correctly processed human growth hormone in
 RT Escherichia coli: natural and bacterial signal sequences are
 RT interchangeable.";
 RL Gene 39:247-254(1985).
 RN [9]
 RP SEQUENCE OF 27-217.
 RX MEDLINE=69289202; PubMed=5810834;

RA Li C.H., Dixon J.S., Liu W.-K.;
 RT "Human pituitary growth hormone. XIX. The primary structure of the
 RT hormone.";
 RL Arch. Biochem. Biophys. 133:70-91(1969).
 RN [10]
 RP SEQUENCE OF 27-217, AND REVISIONS.
 RX MEDLINE=72143935; PubMed=5144027;
 RA Li C.H., Dixon J.S.;
 RT "Human pituitary growth hormone. 32. The primary structure of the
 RT hormone: revision.";
 RL Arch. Biochem. Biophys. 146:233-236(1971).
 RN [11]
 RP REVISION.
 RX MEDLINE=73092028; PubMed=4675454;
 RA Bewley T.A., Dixon J.S., Li C.H.;
 RT "Sequence comparison of human pituitary growth hormone, human
 RT chorionic somatomammotropin, and ovine pituitary growth and lactogenic
 RT hormones.";
 RL Int. J. Pept. Protein Res. 4:281-287(1972).
 RN [12]
 RP SEQUENCE OF 27-61 AND 102-124.
 RX MEDLINE=71139765; PubMed=5279046;
 RA Niall H.D.;
 RT "Revised primary structure for human growth hormone.";
 RL Nature New Biol. 230:90-91(1971).
 RN [13]
 RP REVISIONS TO 119-120 AND 157-159.
 RX MEDLINE=71153968; PubMed=5279528;
 RA Niall H.D., Hogan M.L., Sauer R., Rosenblum I.Y., Greenwood F.C.;
 RT "Sequences of pituitary and placental lactogenic and growth hormones:
 RT evolution from a primordial peptide by gene reduplication.";
 RL Proc. Natl. Acad. Sci. U.S.A. 68:866-869(1971).
 RN [14]
 RP REVISION.
 RA Niall H.D.;
 RT "The chemistry of the human lactogenic hormones.";
 RL (In) Griffiths K. (eds.);
 RL Prolactin and carcinogenesis, Proc. fourth tenovus workshop prolactin,
 RL pp.13-20, Alpha Omega Alpha Press, Cardiff (1972).
 RN [15]
 RP SEQUENCE OF 27-79 (ISOFORM 2).
 RX MEDLINE=81117361; PubMed=7462247;
 RA Chapman G.E., Rogers K.M., Brittain T., Bradshaw R.A., Bates O.J.,
 RA Turner C., Cary P.D., Crane-Robinson C.;
 RT "The 20,000 molecular weight variant of human growth hormone.
 RT Preparation and some physical and chemical properties.";
 RL J. Biol. Chem. 256:2395-2401(1981).
 RN [16]
 RP SEQUENCE OF 46-80 (ISOFORM 2).
 RX MEDLINE=80130196; PubMed=7356479;
 RA Lewis U.J., Bonewald L.F., Lewis L.J.;
 RT "The 20,000-dalton variant of human growth hormone: location of the
 RT amino acid deletions.";
 RL Biochem. Biophys. Res. Commun. 92:511-516(1980).
 RN [17]
 RP DEAMIDATION OF GLN-163 AND ASN-178.
 RX MEDLINE=82052997; PubMed=7028740;

RA Lewis U.J., Singh R.N., Bonewald L.F., Seavey B.K.;
 RT "Altered proteolytic cleavage of human growth hormone as a result of
 RT deamidation.";
 RL J. Biol. Chem. 256:11645-11650(1981).
 RN [18]
 RP PHOSPHORYLATION SITES SER-132 AND SER-176.
 RC TISSUE=Pituitary;
 RX PubMed=14997482; DOI=10.1002/pmic.200300584;
 RA Giorgianni F., Beranova-Giorgianni S., Desiderio D.M.;
 RT "Identification and characterization of phosphorylated proteins in the
 RT human pituitary.";
 RL Proteomics 4:587-598(2004).
 RN [19]
 RP REVIEW.
 RX MEDLINE=99321812; PubMed=10393484; DOI=10.1159/000053128;
 RA Baumann G.;
 RT "Growth hormone heterogeneity in human pituitary and plasma.";
 RL Horm. Res. 51 Suppl. 1:2-6(1999).
 RN [20]
 RP 3D-STRUCTURE MODELING.
 RX MEDLINE=88190073; PubMed=3447173;
 RA Cohen F.E., Kuntz I.D.;
 RT "Prediction of the three-dimensional structure of human growth
 RT hormone.";
 RL Proteins 2:162-166(1987).
 RN [21]
 RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
 RX MEDLINE=92196577; PubMed=1549776;
 RA de Vos A.M., Ultsch M., Kossiakoff A.A.;
 RT "Human growth hormone and extracellular domain of its receptor:
 RT crystal structure of the complex.";
 RL Science 255:306-312(1992).
 RN [22]
 RP X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS).
 RX MEDLINE=95075462; PubMed=7984244; DOI=10.1038/372478a0;
 RA Somers W., Ultsch M., de Vos A.M., Kossiakoff A.A.;
 RT "The X-ray structure of a growth hormone-prolactin receptor complex.";
 RL Nature 372:478-481(1994).
 RN [23]
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
 RA Chantalat L., Chirgadze N.Y., Jones N., Korber F., Navaza J.,
 RA Pavlovsk A.G., Wlodawer A.;
 RT "The crystal-structure of wild-type growth-hormone at 2.5-A
 RT resolution.";
 RL Protein Pept. Lett. 2:333-340(1995).
 RN [24]
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
 RX MEDLINE=97113023; PubMed=8943276; DOI=10.1074/jbc.271.50.32197;
 RA Sundstroem M., Lundqvist T., Roedin J., Giebel L.B., Milligan D.,
 RA Norstedt G.;
 RT "Crystal structure of an antagonist mutant of human growth hormone,
 RT G120R, in complex with its receptor at 2.9-A resolution.";
 RL J. Biol. Chem. 271:32197-32203(1996).
 RN [25]
 RP VARIANT KOWARSKI SYNDROME CYS-103.
 RX MEDLINE=96150232; PubMed=8552145; DOI=10.1056/NEJM199602153340704;
 RA Takahashi Y., Kaji H., Okimura Y., Goji K., Abe H., Chihara K.;

RT "Short stature caused by a mutant growth hormone.";
 RL N. Engl. J. Med. 334:432-436(1996).
 RN [26]
 RP ERRATUM.
 RA Takahashi Y., Kaji H., Okimura Y., Goji K., Abe H., Chihara K.;
 RL N. Engl. J. Med. 334:1207-1207(1996).
 RN [27]
 RP VARIANT KOWARSKI SYNDROME GLY-138.
 RX MEDLINE=97426478; PubMed=9276733;

Query Match 57.8%; Score 461; DB 1; Length 217;
 Best Local Similarity 70.3%; Pred. No. 1.6e-36;
 Matches 102; Conservative 7; Mismatches 20; Indels 16; Gaps 4;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
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 Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 86
 Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE 111
 ||||| : | :
 Db 87 PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLLE 145
 Qy 112 ALYLVCG--ERGFFYTPKTRGIVEQ 134
 : : | | : | : | : |
 Db 146 GIQTLMGRLEDG---SPRTGQIFKQ 167

RESULT 2

SOMA_PANTR

ID SOMA_PANTR STANDARD; PRT; 217 AA.
 AC P58756;
 DT 28-FEB-2003 (Rel. 41, Created)
 DT 28-FEB-2003 (Rel. 41, Last sequence update)
 DT 05-JUL-2004 (Rel. 44, Last annotation update)
 DE Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth hormone) (Growth hormone 1).
 GN Name=GH1;
 OS Pan troglodytes (Chimpanzee).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
 OX NCBI_TaxID=9598;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;
 RT "Independent duplication of the growth hormone gene in three Anthropoidean lineages.";
 RL Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
 CC -!- FUNCTION: Plays an important role in growth control. Its major role in stimulating body growth is to stimulate the liver and other tissues to secrete IGF-1. It stimulates both the differentiation and proliferation of myoblasts. It also stimulates amino acid uptake and protein synthesis in muscle and other tissues (By similarity).
 CC -!- SUBCELLULAR LOCATION: Secreted.
 CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration

RA Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
 RT "Cloning of four growth hormone/chorionic somatomammotropin-related
 RT complementary deoxyribonucleic acids differentially expressed during
 RT pregnancy in the rhesus monkey placenta.";
 RL Endocrinology 133:1744-1752(1993).
 RN [2]
 RP SEQUENCE OF 27-217.
 RX MEDLINE=86129460; PubMed=3080959;
 RA Li C.H., Chung D., Lahm H.W., Stein S.;
 RT "The primary structure of monkey pituitary growth hormone.";
 RL Arch. Biochem. Biophys. 245:287-291(1986).
 CC -!- FUNCTION: Plays an important role in growth control. Its major
 CC role in stimulating body growth is to stimulate the liver and
 CC other tissues to secrete IGF-1. It stimulates both the
 CC differentiation and proliferation of myoblasts. It also stimulates
 CC amino acid uptake and protein synthesis in muscle and other
 CC tissues.
 CC -!- SUBCELLULAR LOCATION: Secreted.
 CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
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 CC -----
 DR EMBL; L16556; AAA18842.1; -.
 DR PIR; I67410; I67410.
 DR HSSP; P01241; 1AXI.
 DR InterPro; IPR009079; 4_helix_cytokine.
 DR InterPro; IPR001400; Somatotropin.
 DR Pfam; PF00103; Hormone_1; 1.
 DR PRINTS; PR00836; SOMATOTROPIN.
 DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
 DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
 KW Direct protein sequencing; Hormone; Pituitary; Signal.
 FT SIGNAL 1 26
 FT CHAIN 27 217 Somatotropin.
 FT DISULFID 79 191 By similarity.
 FT DISULFID 208 215 By similarity.
 FT CONFLICT 100 100 E -> Q (in Ref. 2).
 FT CONFLICT 179 179 N -> D (in Ref. 2).
 SQ SEQUENCE 217 AA; 24913 MW; 2C5180341EEC46D0 CRC64;

Query Match 57.7%; Score 460; DB 1; Length 217;
 Best Local Similarity 98.9%; Pred. No. 2e-36;
 Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT 86

 Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
 ||||||||||||||||||||||||||||
 Db 87 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 117

06IYF0

Query Match 57.7%; Score 460; DB 2; Length 217;
Best Local Similarity 98.9%; Pred. No. 2e-36;
Matches 90; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

RESULT 5

O6IYF1

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ID Q6IYF1 PRELIMINARY; PRT; 217 AA.
AC Q6IYF1;
DT 05-JUL-2004 (TrEMBLrel. 27, Created)
DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)
DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
DE Growth hormone 1 variant 1.
GN Name=GH1;
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI TaxID=9606;
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RN      [1]
RP      SEQUENCE FROM N.A.
RA      Jorge A.A.L., Arnhold I.J.P., Mendonca B.B.;
RL      Submitted (APR-2004) to the EMBL/GenBank/DDBJ databases.
DR      EMBL; AY613431; AAT11508.1; -.
DR      HSSP; P01241; 1A22.
DR      GO; GO:0005576; C:extracellular; IEA.
DR      GO; GO:0005179; F:hormone activity; IEA.
DR      InterPro; IPR009079; 4_helix_cytokine.
DR      InterPro; IPR001400; Somatotropin.
DR      Pfam; PF00103; Hormone_1; 1.
DR      PRINTS; PR00836; SOMATOTROPIN.
DR      PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR      PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ      SEQUENCE      217 AA;  24875 MW;  12DB1B92F63934D8 CRC64;

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Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT  61
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Db      27  FPTIPLSRLFDNVMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT  86

Qy      62  PSNREETQQKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCGS-----HLVE  111
      |||
Db      87  PSNREETQQKSNLELLRISLLLIQSWLEPVQF-LRSVFANSLVYGASDSNVYDLLKDLLE  145

Qy      112 ALYLVCG--ERGFYTPKTRGIVEQ  134
      : : | | | :|:| | :|
Db      146 GIOTLMGRLEDG---SPRTGOIFKO  167

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RESULT 6

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ID      SOMA_SAIBB      STANDARD;      PRT;      217 AA.
AC      P58343;
DT      28-FEB-2003 (Rel. 41, Created)
DT      28-FEB-2003 (Rel. 41, Last sequence update)
DT      05-JUL-2004 (Rel. 44, Last annotation update)
DE      Somatotropin precursor (Growth hormone).
GN      Name=GH1;
OS      Saimiri boliviensis boliviensis (Bolivian squirrel monkey).
OC      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC      Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Cebinae; Saimiri.
OX      NCBI_TaxID=39432;
RN      [1]
RP      SEQUENCE FROM N.A.
RX      MEDLINE=21265430; PubMed=11371582;
RA      Liu J.C., Makova K.D., Adkins R.M., Gibson S., Li W.H.;
RT      "Episodic evolution of growth hormone in primates and emergence of the
RT      species specificity of human growth hormone receptor.";
RL      Mol. Biol. Evol. 18:945-953(2001).
CC      -!- FUNCTION: Plays an important role in growth control. Its major
CC      role in stimulating body growth is to stimulate the liver and
CC      other tissues to secrete IGF-1. It stimulates both the
CC      differentiation and proliferation of myoblasts. It also stimulates

```

CC amino acid uptake and protein synthesis in muscle and other
 CC tissues (By similarity).
 CC -!- SUBCELLULAR LOCATION: Secreted.
 CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
 CC -----
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 CC -----
 DR EMBL; AF339060; AAK62287.1; -.
 DR HSSP; P01241; 1A22.
 DR InterPro; IPR009079; 4_helix_cytokine.
 DR InterPro; IPR001400; Somatotropin.
 DR Pfam; PF00103; Hormone_1; 1.
 DR PRINTS; PR00836; SOMATOTROPIN.
 DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
 DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
 KW Hormone; Pituitary; Signal.
 FT SIGNAL 1 26 By similarity.
 FT CHAIN 27 217 Somatotropin.
 FT DISULFID 79 191 By similarity.
 FT DISULFID 208 215 By similarity.
 SQ SEQUENCE 217 AA; 24864 MW; 9515289992C529F7 CRC64;

Query Match 54.8%; Score 437; DB 1; Length 217;
 Best Local Similarity 91.3%; Pred. No. 3.3e-34;
 Matches 84; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

Qy 2 FPTIPLSRFLDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSIPT 61
 ||||| |
 Db 27 FPTIPLSRLLDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSEIPT 86
 Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL 93
 |:::| |
 Db 87 PASKKETQQKSNLELLRISLILIQSWFEPVQL 118

RESULT 7

Q8WNEO

ID Q8WNEO PRELIMINARY; PRT; 217 AA.
 AC Q8WNEO;
 DT 01-MAR-2002 (TrEMBLrel. 20, Created)
 DT 01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
 DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
 DE Growth hormone.
 GN Name=GH-N;
 OS Ateles geoffroyi (Black-handed spider monkey).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Atelinae; Ateles.
 OX NCBI_TaxID=9509;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;

```

RL   Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF374234; AAL72286.1; -.
DR   HSSP; P01241; 1A22.
DR   GO; GO:0005576; C:extracellular; IEA.
DR   GO; GO:0005179; F:hormone activity; IEA.
DR   Pfam; PF00103; Hormone_1; 1.
DR   PRINTS; PR00836; SOMATOTROPIN.
DR   PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR   PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ   SEQUENCE    217 AA;  24894 MW;  425829FF41EEAAE6 CRC64;

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QY	2	FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT	61
Db	27	FPTIPLSRLLDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNPQTSLCFSESIPT	86
QY	62	PSNREETQOKSNLELLRISLLLIQSWLEPVQLGTGPRFVNQHLCG-----SHLVE	111
		:::	
Db	87	PASKKETQOKSNLELLRISLLLIQSWFEPVQF-LRSVFANSLLYGVSDSDVYEYLDLEE	145
QY	112	ALYLVCG--ERGGFFYPKTRGIVEQ	134
		: : :	
Db	146	GIQTLMGRLEDG---SPQTGEIFRQ	167

RESULT 8

```

ID      SOM2_PANTR          STANDARD;          PRT;          217 AA.
AC      P58757;
DT      28-FEB-2003 (Rel. 41, Created)
DT      28-FEB-2003 (Rel. 41, Last sequence update)
DT      05-JUL-2004 (Rel. 44, Last annotation update)
DE      Growth hormone variant precursor (GH-V) (Placenta-specific growth
DE      hormone) (Growth hormone 2).
GN      Name=GH2;
OS      Pan troglodytes (Chimpanzee).
OC      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC      Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
OX      NCBI_TaxID=9598;
RN      [1]
RP      SEQUENCE FROM N.A.
RA      Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;
RT      "Independent duplication of the growth hormone gene in three
RT      Anthroipoidean lineages.";
RL      Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
CC      -!- FUNCTION: Plays an important role in growth control. Its major
CC      role in stimulating body growth is to stimulate the liver and
CC      other tissues to secrete IGF-1. It stimulates both the
CC      differentiation and proliferation of myoblasts. It also stimulates
CC      amino acid uptake and protein synthesis in muscle and other
CC      tissues.
CC      -!- SUBCELLULAR LOCATION: Secreted.
CC      -!- TISSUE SPECIFICITY: Expressed in the placenta.
CC      -!- SIMILARITY: Belongs to the somatotropin/prolactin family.

```



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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; AF374233; AAL72285.1; -.
DR HSSP; P01241; 1A22.
DR InterPro; IPR009079; 4_helix_cytokine.
DR InterPro; IPR001400; Somatotropin.
DR Pfam; PF00103; Hormone_1; 1.
DR PRINTS; PR00836; SOMATOTROPIN.
DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW Glycoprotein; Hormone; Placenta; Signal.
FT SIGNAL 1 26 By similarity.
FT CHAIN 27 217 Growth hormone variant.
FT DISULFID 79 191 By similarity.
FT DISULFID 208 215 By similarity.
SQ SEQUENCE 217 AA; 24990 MW; 1592A429075677DE CRC64;

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Query Match 54.5%; Score 434.5; DB 1; Length 217;
Best Local Similarity 78.9%; Pred. No. 5.8e-34;
Matches 90; Conservative 4; Mismatches 9; Indels 11; Gaps 1;

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```

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
   |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 27 FPTIPLSRLFDNAMLRAHRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86

Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL-----GTGPRFVNQHL 104
   ||| :|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db 87 PSNRVKTQQKSNLELLRISLLLIQSWLEPVQLLRVVFANSLVYGASDSNVYRHL 140

```

RESULT 9

SOMA_CALJA

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ID SOMA_CALJA STANDARD; PRT; 217 AA.
AC Q9GMB3;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Somatotropin precursor (Growth hormone).
GN Name=GHL;
OS Callithrix jacchus (Common marmoset).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Callithrix.
OX NCBI_TaxID=9483;
RN [1]
RP SEQUENCE FROM N.A.
RA Wallis O.C., Wallis M.;
RT "Cloning and characterisation of a putative growth hormone encoding
RT gene from the marmoset (Callithrix jacchus).";
RL Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases.
CC -!- FUNCTION: Plays an important role in growth control. Its major

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RN [1]
 RP SEQUENCE FROM N.A.
 RA Halleck A., Ebert L., Mkoundinya M., Schick M., Eisenstein S.,
 RA Neubert P., Kstrang K., Schatten R., Shen B., Henze S., Mar W.,
 RA Korn B., Zuo D., Hu Y., LaBaer J.;
 RL Submitted (JUN-2004) to the EMBL/GenBank/DDBJ databases.
 DR EMBL; CR541902; CAG46700.1; -.
 DR GO; GO:0005576; C:extracellular; IEA.
 DR GO; GO:0005179; F:hormone activity; IEA.
 DR InterPro; IPR009079; 4_helix_cytokine.
 DR InterPro; IPR001400; Somatotropin.
 DR Pfam; PF00103; Hormone_1; 1.
 DR PRINTS; PR00836; SOMATOTROPIN.
 DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
 DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
 SQ SEQUENCE 217 AA; 25001 MW; F24C05312EB37988 CRC64;

Query Match 53.6%; Score 427.5; DB 2; Length 217;
 Best Local Similarity 78.1%; Pred. No. 2.8e-33;
 Matches 89; Conservative 4; Mismatches 10; Indels 11; Gaps 1;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
 |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
 Db 27 FPTIPLSRLFDNAMLRRRLRYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86
 Qy 62 PSNREETQQKSNLELLRLISLLLIQSWLEPVQL-----GTGPRFVNQHL 104
 |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||
 Db 87 PSNRAKTQQKSNLELLRLISLLLIQSWLEPVQLLRVFSVANSILVYGASDSNVYRHL 140

RESULT 11
 O14644

ID O14644 PRELIMINARY; PRT; 245 AA.
 AC O14644;
 DT 01-JAN-1998 (TrEMBLrel. 05, Created)
 DT 01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
 DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
 DE Placental growth hormone isoform hGH-V3 precursor.
 GN Name=hGH-V;
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
 OX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Full-term placenta;
 RX MEDLINE=98373737; PubMed=9709963; DOI=10.1210/jc.83.8.2878;
 RA Boguszewski C.L., Svensson P.A., Jansson T., Clark R.,
 RA Carlsson L.M.S., Carlsson B.;
 RT "Cloning of two novel growth hormone transcripts expressed in human
 RT placenta."
 RL J. Clin. Endocrinol. Metab. 83:2878-2885(1998).
 DR EMBL; AF006061; AAB71829.1; -.
 DR HSSP; P01241; 1A22.
 DR GO; GO:0005576; C:extracellular; IEA.
 DR GO; GO:0005179; F:hormone activity; IEA.
 DR InterPro; IPR009079; 4_helix_cytokine.

DR InterPro; IPR001400; Somatotropin.
 DR Pfam; PF00103; Hormone_1; 1.
 DR PRINTS; PR00836; SOMATOTROPIN.
 DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
 KW Signal.
 FT SIGNAL 1 26 Potential.
 SQ SEQUENCE 245 AA; 27101 MW; 14CC7F8CD75D91C8 CRC64;

Query Match 53.6%; Score 427.5; DB 2; Length 245;
 Best Local Similarity 71.9%; Pred. No. 3.2e-33;
 Matches 92; Conservative 6; Mismatches 17; Indels 13; Gaps 2;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
 |||||:||||:||||| ||||| |||||
 Db 27 FPTIPLSRLFDNAMLRRRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLCFSESIPT 86
 Qy 62 PSNREETQQKSNLELLRLISLLLIQSWLEPVQL-----GTGPRFVNQHLCGSHLV 110
 ||| :||||| ||||| ||||| | :|| |
 Db 87 PSNRVKTQQKSNLELLRLISLLLIQSWLEPVQLLRVSFANSLVYGASDSNVYRHL--KDLE 144
 Qy 111 EALYLVCG 118
 | : : |
 Db 145 EGIQTLIG 152

RESULT 12

SOM2_HUMAN

ID SOM2_HUMAN STANDARD; PRT; 217 AA.
 AC P01242; P09587;
 DT 21-JUL-1986 (Rel. 01, Created)
 DT 28-FEB-2003 (Rel. 41, Last sequence update)
 DT 05-JUL-2004 (Rel. 44, Last annotation update)
 DE Growth hormone variant precursor (GH-V) (Placenta-specific growth hormone) (Growth hormone 2).
 GN Name=GH2;
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
 OX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A. (ISOFORM 1).
 RX MEDLINE=83182010; PubMed=7169009;
 RA Seeburg P.H.;
 RT "The human growth hormone gene family: nucleotide sequences show recent divergence and predict a new polypeptide hormone."
 RL DNA 1:239-249(1982).
 RN [2]
 RP SEQUENCE FROM N.A. (ISOFORMS 1 AND 2).
 RX MEDLINE=88243769; PubMed=3379057;
 RA Cooke N.E., Ray J., Emery J.G., Liebhaver S.A.;
 RT "Two distinct species of human growth hormone-variant mRNA in the human placenta predict the expression of novel growth hormone proteins."
 RL J. Biol. Chem. 263:9001-9006(1988).
 RN [3]
 RP SEQUENCE FROM N.A. (ISOFORM 1).
 RX MEDLINE=89024984; PubMed=2460050;

RA Igout A., Scippo M.L., Franken F., Hennen G.;
 RT "Cloning and nucleotide sequence of placental hGH-V cDNA.";
 RL Arch. Int. Physiol. Biochim. 96:63-67(1988).
 RN [4]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=89307277; PubMed=2744760;
 RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,
 RA Seeburg P.H.;
 RT "The human growth hormone locus: nucleotide sequence, biology, and
 RT evolution.";
 RL Genomics 4:479-497(1989).
 RN [5]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Placenta;
 RX MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;
 RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
 RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
 RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
 RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
 RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
 RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
 RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
 RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
 RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
 RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
 RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
 RA Fahey J., Helton E., Kettelman M., Madan A., Rodrigues S., Sanchez A.,
 RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
 RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
 RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
 RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
 RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
 RT "Generation and initial analysis of more than 15,000 full-length human
 RT and mouse cDNA sequences.";
 RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
 RN [6]
 RP REVIEW.
 RX MEDLINE=99321812; PubMed=10393484; DOI=10.1159/000053128;
 RA Baumann G.;
 RT "Growth hormone heterogeneity in human pituitary and plasma.";
 RL Horm. Res. 51 Suppl. 1:2-6(1999).
 CC -!- FUNCTION: Plays an important role in growth control. Its major
 CC role in stimulating body growth is to stimulate the liver and
 CC other tissues to secrete IGF-1. It stimulates both the
 CC differentiation and proliferation of myoblasts. It also stimulates
 CC amino acid uptake and protein synthesis in muscle and other
 CC tissues.
 CC -!- SUBUNIT: Monomer, dimer, trimer, tetramer and pentamer, disulfide-
 CC linked or non-covalently associated, in homopolymeric and
 CC heteropolymeric combinations. Can also form a complex either with
 CC GHBP or with the alpha2-macroglobulin complex.
 CC -!- SUBCELLULAR LOCATION: Secreted.
 CC -!- ALTERNATIVE PRODUCTS:
 CC Event=Alternative splicing; Named isoforms=2;
 CC Name=1; Synonyms=GH-V1;
 CC IsoId=P01242-1; Sequence=Displayed;
 CC Name=2; Synonyms=GH-V2;

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CC      IsoId=P01242-2; Sequence=VSP_006203;
CC      Note=No experimental confirmation available;
CC      -!- TISSUE SPECIFICITY: Expressed in the placenta.
CC      -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC      -----
CC      This SWISS-PROT entry is copyright. It is produced through a collaboration
CC      between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC      the European Bioinformatics Institute. There are no restrictions on its
CC      use by non-profit institutions as long as its content is in no way
CC      modified and this statement is not removed. Usage by and for commercial
CC      entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC      or send an email to license@isb-sib.ch).
CC      -----
DR      EMBL; K00470; AAA98619.1; -.
DR      EMBL; J03756; AAB59547.1; -.
DR      EMBL; J03756; AAB59548.1; -.
DR      EMBL; M38451; AAA35891.1; -.
DR      EMBL; J03071; AAA52552.1; -.
DR      EMBL; BC020760; AAH20760.1; -.
DR      PIR; A28072; STHUV2.
DR      PIR; D32435; STHUV.
DR      HSSP; P01241; 1A22.
DR      Genew; HGNC:4262; GH2.
DR      H-InvDB; HIX0014077; -.
DR      MIM; 139240; -.
DR      GO; GO:0005179; F:hormone activity; TAS.
DR      InterPro; IPR009079; 4_helix_cytokine.
DR      InterPro; IPR001400; Somatotropin.
DR      Pfam; PF00103; Hormone_1; 1.
DR      PRINTS; PR00836; SOMATOTROPIN.
DR      PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR      PROSITE; PS00338; SOMATOTROPIN_2; 1.
KW      Alternative splicing; Glycoprotein; Hormone; Placenta; Polymorphism;
KW      Signal.
FT      SIGNAL          1      26
FT      CHAIN           27     217      Growth hormone variant.
FT      DISULFID        79     191      By similarity.
FT      DISULFID       208     215      By similarity.
FT      CARBOHYD        166     166      N-linked (GlcNAc. . .) (Potential).
FT      VARSPLIC        153     217      RLEDGSPRTGQIFNQSYSKFDTKSHNDDALLKNYGLLYCFR
FT                                     KDMDKVETFLRIVQCRSVEGSCGF -> VRVAPGIPNPGAP
FT                                     LASRDWGEKHCCPLFSSQALTQENSPYSSFPVLNPPGLSLQ
FT                                     PGGEGGKWMNERGREQCPSAWPLLLFLHFAEAGRWPDPWA
FT                                     DLQSVLQQV (in isoform 2).
FT                                     /FTId=VSP_006203.
FT      VARIANT         90      90      R -> W (in dbSNP:5389).
FT                                     /FTId=VAR_014591.
FT      CONFLICT        109     109      I -> T (in Ref. 2).
SQ      SEQUENCE       217 AA;  24999 MW;  7B9324698E822F96 CRC64;

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Query Match          53.5%; Score 426.5; DB 1; Length 217;
Best Local Similarity 78.1%; Pred. No. 3.5e-33;
Matches 89; Conservative 4; Mismatches 10; Indels 11; Gaps 1;

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Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
        |||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
Db      27 FPTIPLSRLFDNAMLRRARLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLSFSESIPT 86

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Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL-----GTGPRFVNQHL 104
 |||| :||||| | | :||
 Db 87 PSNRVKTQQKSNLELLRISLLLIQSWLEPVQLLRSVFANSILVYGASDSNVYRHL 140

RESULT 13

Q6FH32

ID Q6FH32 PRELIMINARY; PRT; 217 AA.
 AC Q6FH32;
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
 DE GH2 protein (Fragment).
 GN Name=GH2;
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
 OX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Halleck A., Ebert L., Mkoundinya M., Schick M., Eisenstein S.,
 RA Neubert P., Kstrang K., Schatten R., Shen B., Henze S., Mar W.,
 RA Korn B., Zuo D., Hu Y., LaBaer J.;
 RL Submitted (JUN-2004) to the EMBL/GenBank/DDBJ databases.
 DR EMBL; CR541924; CAG46722.1; -.
 DR GO; GO:0005576; C:extracellular; IEA.
 DR GO; GO:0005179; F:hormone activity; IEA.
 DR InterPro; IPR009079; 4_helix_cytokine.
 DR InterPro; IPR001400; Somatotropin.
 DR Pfam; PF00103; Hormone_1; 1.
 DR PRINTS; PR00836; SOMATOTROPIN.
 DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
 DR PROSITE; PS00338; SOMATOTROPIN_2; 1.
 FT NON TER 217 217
 SQ SEQUENCE 217 AA; 25010 MW; 075C0EF63C15AAF5 CRC64;

Query Match 52.9%; Score 421.5; DB 2; Length 217;
 Best Local Similarity 77.2%; Pred. No. 1.1e-32;
 Matches 88; Conservative 4; Mismatches 11; Indels 11; Gaps 1;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
 ||||| :||||| ||:|:|:| ||||| ||||| |||||
 Db 27 FPTIPLSRLFDNAMLRRRLYQLAYDTYQEFEEAYILKEQKYSFLQNPQTSLSFSESIPT 86
 Qy 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQL-----GTGPRFVNQHL 104
 |||| :||||| | | :||
 Db 87 PSNRVKTQQKSNLELLHISLLLIQSWLEPVQLLRSVFANSILVYGASDSNVYRHL 140

RESULT 14

Q07369

ID Q07369 PRELIMINARY; PRT; 217 AA.
 AC Q07369;
 DT 01-NOV-1996 (TrEMBLrel. 01, Created)
 DT 01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
 DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)

RX PubMed=15246530; DOI=10.1016/j.gene.2004.03.034;
 RA Revol De Mendoza A., Esquivel Escobedo D., Martinez Davila I.,
 RA Saldana H.;
 RT "Expansion and divergence of the GH locus between spider monkey and
 RT chimpanzee.";
 RL Gene 336:185-193(2004).
 RN [2]
 RP SEQUENCE FROM N.A.
 RA Revol A., Esquivel D.E., Barrera H.S.;
 RT "The GH-PL locus a hot-point between human and chimpanzee genomes.";
 RL Submitted (AUG-2002) to the EMBL/GenBank/DDBJ databases.
 DR EMBL; AY146627; AAN84507.1; -.
 DR HSSP; P01241; 1AXI.
 DR GO; GO:0005576; C:extracellular; IEA.
 DR GO; GO:0005179; F:hormone activity; IEA.
 DR InterPro; IPR009079; 4_helix_cytokine.
 DR InterPro; IPR001400; Somatotropin.
 DR Pfam; PF00103; Hormone_1; 1.
 DR PRINTS; PR00836; SOMATOTROPIN.
 DR PROSITE; PS00266; SOMATOTROPIN_1; 1.
 FT NON_TER 184 184
 SQ SEQUENCE 184 AA; 21145 MW; 68D1FF4AE59178DD CRC64;

Query Match 50.1%; Score 399; DB 2; Length 184;

Best Local Similarity 84.6%; Pred. No. 1.3e-30;

Matches 77; Conservative 7; Mismatches 7; Indels 0; Gaps 0;

QY 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNPQTSLSFSESIPT 61
 |||||:||||| |||| |||||:||||| : ||| ||:||||
 Db 27 FPTIPLSRLFDHAMLQAHRAHQLAIDTYQEFEEAYIPKDQKYSFLHDSQTSFCFSDSIPT 86
 QY 62 PSNREETQQKSNLELLRISLLLIQSWLEPVQ 92
 ||| |||||:|||||:
 Db 87 PSNMEETQQKSNLELLRISLLLIQSWLEPVR 117

Search completed: March 9, 2005, 04:18:16
 Job time : 131.734 secs